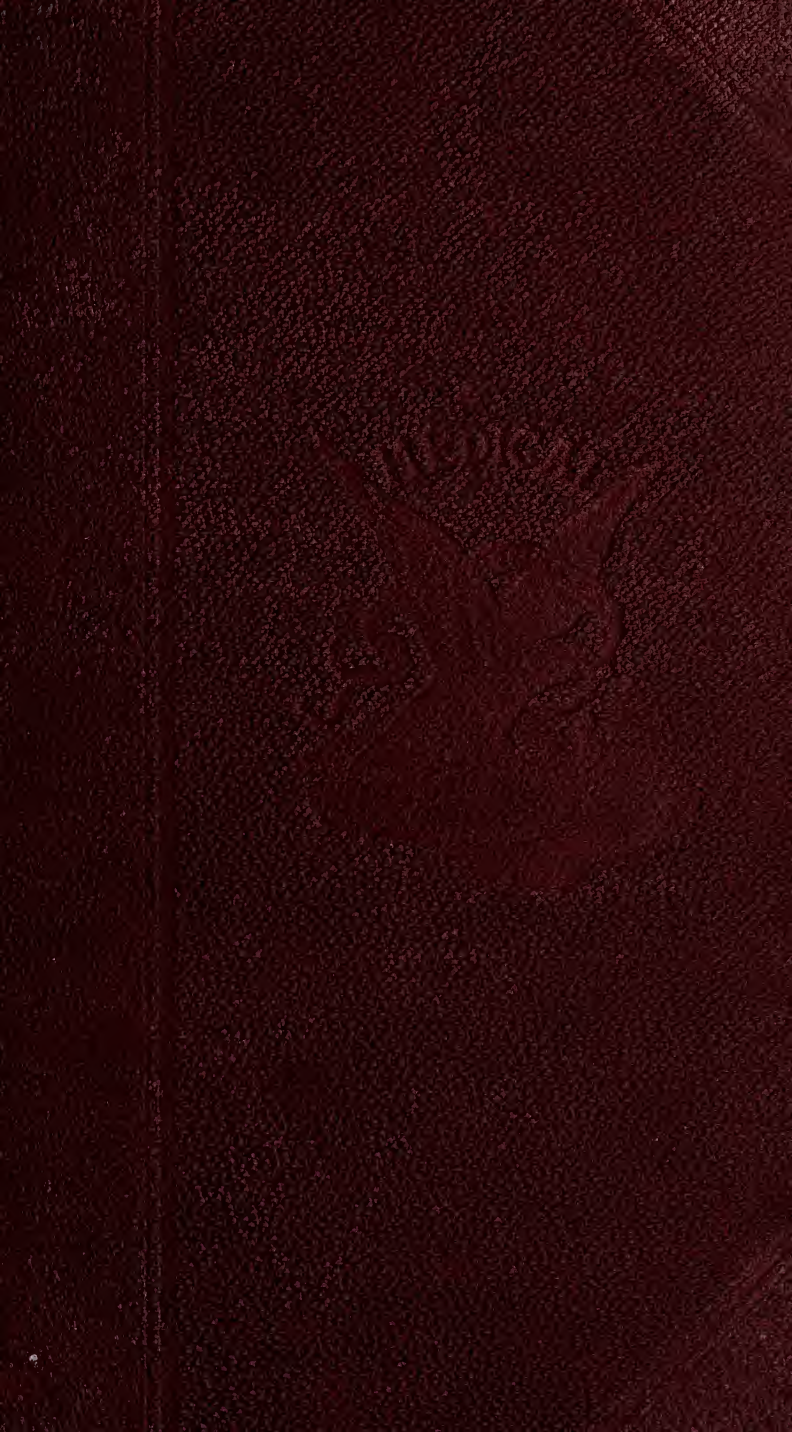


THERE IS ONE MERCURIAL AND ONE ONLY

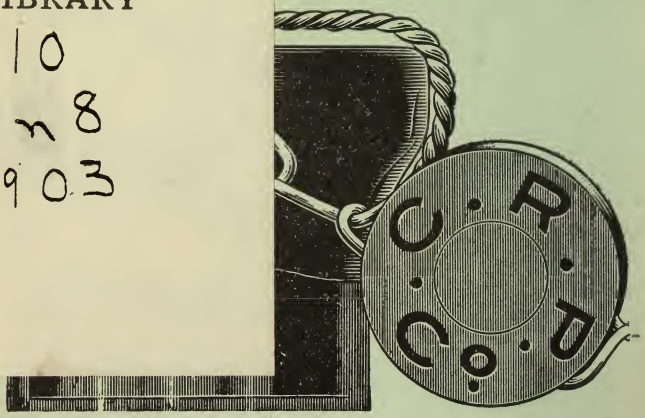
WHICH, WHILE PRODUCING FULL "ALTERATIVE" EFFECT, WILL SIMULTANEOUSLY STIMULATE THE APPETITE AND INCREASE THE WEIGHT OF THE PATIENT.

ONE IS

AURO

W TO USE IT UNLESS YOU TELL THEM

THE UNIVERSITY
OF ILLINOIS
LIBRARY
610
In8
1903



This is an enlargement of the top of a bottle of genuine Arsenauro or Mercauro (the TONIC ALTERATIVES). Our bottles bear no dose label, we never send literature to laymen, thus they cannot even guess the dosage. The administration of these products is therefore entirely in the hands of medical practitioners. We protect you. If you protect us by insisting upon the presence of this seal, our combined efforts will protect your patient. Your medical skill and our chemical skill are entirely nullified if the patient obtains a spurious article.

CHAS. ROOME PARMELE CO., 45 John St., N. Y.

Lactopeptine

A combination of the five active agents of digestion in the same proportion as they normally exist in the human organism.

Useful in Dyspepsia and all digestive ailments — Powder — Tablet — Elixir.

The N. Y. Pharmacal Ass'n
Yonkers, N. Y.

Liquid Peptonoids

An aseptic fluid nutrient—peptones of Beef, Milk and Gluten ready for immediate absorption.

Of special service in Fevers, Exhausted Conditions generally and in Convalescence.

The Arlington Chem. Co.,
Yonkers, N. Y.

Hemaboloids

A combination of vegetable iron-bearing Nucleo-Albumens, reinforced by Bone-marrow Extract, Beef Peptones and Nuclein.

Of special service in Anemia, Chlorosis, etc., and as a General Reconstructive.

The Palisade Mfg. Co.
Yonkers, N. Y.

TRUE ANIMAL IRON

Physicians everywhere are looking for a **Blood** reconstructant that contains every element of nutrition of the animal, mineral and vegetable kingdoms, viz.: **Animal Iron;** a reconstructant that will supply every deficiency in the blood of anæmic patients in adequate quantity and quality: one that will nourish—stimulate—assimilate—without tax on the digestive organs. These requirements are all found in perfection in

BOVININE

It Contains 10% Animal Iron

20% Coagulable Albumen, and all the constituents of healthy **Blood.**

It is thoroughly sterile, requires little or no digestion, and produces blood corpuscles that **Mature.** Corpuscles of fullness and integrity. Herein lies its great superiority over any and all the preparations of inorganic iron. Your microscope will prove the truth of these facts. Our scientific treatise on Hæmatherapy for the asking. It contains reports of hundreds of cases.

THE BOVININE COMPANY

75 West Houston Street, New York

THE

INTERNATIONAL MEDICAL ANNUAL:

A YEAR BOOK OF TREATMENT AND PRACTITIONER'S INDEX.

Contributors.

ROBT. ABBE, M.D.
BERTRAM L. ABRAHAMS, B.SC., M.B., M.R.C.P.
HERBERT W. ALLINGHAM, F.R.C.S.
JAS. CANTLIE, M.A., M.B., F.R.C.S.
PROF. A. H. CARTER, M.D., F.R.C.P.
PROF. H. DWIGHT CHAPIN, M.A., M.D.
E. HURRY FENWICK, F.R.C.S.
A. E. GILES, B.SC., M.D., F.R.C.S.
EDWARD W. GOODALL, M.D.
PROF. G. M. HAMMOND, A.M., M.D.
PROF. H. AMORY HARE, M.D., B.SC.
EDWIN H. HOLTHOUSE, M.B., F.R.C.S.
ROBT. HUTCHISON, M.D., M.R.C.P.
ROBERT JONES, F.R.C.S.
THEO. N. KELYNACK, M.D., M.R.C.P.
PRIESTLEY LEECH, M.D., F.R.C.S.
PROF. HENRY P. LOOMIS, M.D.
JAMES KERR LOVE, M.D.
JOHN MACINTYRE, M.B., C.M.
WM. MILLIGAN, M.D.
KEITH MONSARRAT, F.R.C.S.
WM. MURRELL, M.D., F.R.C.P.
JOS. PRIESTLEY, B.A., M.D., D.P.H.
BOARDMAN REED, M.D.
A. D. ROCKWELL, A.M., M.D.
F. M. SANDWITH, M.D., F.R.C.P.
PROF. ROBT. SAUNDBY, M.D., F.R.C.P., LL.D.
W. SCOTT SCHLEY, A.B., M.D.
JAMES SHAW, M.D.
WALTER G. SPENCER, M.S., F.R.C.S.
A. H. TUBBY, M.S., M.B.
JOSEPH G. TURNER, F.R.C.S., L.D.S.
J. W. THOMSON WALKER, F.R.C.S.
NORMAN WALKER, M.D.

1903

TWENTY-FIRST YEAR.

New York:

E. B. TREAT & CO., 241-243 WEST 23d STREET.

CHICAGO: 199 CLARK STREET

Price $3.

610
I n8
1903

PREFACE.

WITH this issue the *Medical Annual* reaches its twenty-first year, and we have reason to be grateful for the fact that those who were the most concerned in bringing it into existence, and who nursed it through its period of adolescence, have been spared to witness its maturity. We are thankful also that the enthusiasm which led us to start the work so many years ago has in no wise abated.

Nor have we found reason to change the ideal with which we began its publication. We desired in a single volume to present a reflection of the knowledge of the year, and to make that reflection true. We did not set ourselves the task of weighing and appraising the conclusions of authors. Our simple aim has been to condense and elucidate them. Truth can only be reached by the natural evolution of knowledge; and our endeavour has been to assist in that evolution, never to interfere with it. The success we have attained is but the measure of the help we have received, and such help is not of one country nor one continent. Science being Universal, we could not reflect it, if we adopted the Parochial ideal which is sometimes pressed upon us.

We commence in this issue to give a general summary of the Year's Work, so that an idea of the general trend of opinion may be more quickly attained. We think that this will be found useful by our readers.

The "Medical Annual" Offices.

*

278769

Digitized by the Internet Archive
in 2015

https://archive.org/details/internationalmed1903unse

CONTENTS.

	PAGE
PREFACE	iii
LIST OF AUTHORS AND SECTIONS	ix
GENERAL REVIEW OF THERAPEUTICS	1
DICTIONARY OF REMEDIES	8
X-RAYS, ETC., IN MEDICINE AND SURGERY	49
ELECTRO-THERAPEUTICS	62
GENERAL REVIEW OF MEDICINE AND SURGERY	67
DICTIONARY OF TREATMENT	95
SURGICAL TREATMENT OF CIRRHOSIS OF THE LIVER	196
DISEASES OF EGYPT	276
DIAGNOSIS OF HIP-JOINT AFFECTIONS	389
SANATORIUM TREATMENT OF PHTHISIS	523
RADIOGRAPHY OF URINARY STONE	625
SANITARY SCIENCE	699
GENERAL INDEX	721

List of Illustrations.

PLATES.

PAGE

PLATES I, II, III.—Electrical and X-Ray Installation, Glasgow Royal Infirmary (six views) - - - - 54

PLATE IV.—Case of Rodent Ulcer treated by X-Rays (two views) 56

PLATE V.—Case of Epithelioma treated by X-Rays (two views) 58

PLATES VI, VII.—Case of Mammary Carcinoma treated by X-Rays (two views) - - - - - 59

PLATES VIII, IX.—Complete Removal of Tuberculous Glands from Neck (four views) - - - - - 109

PLATES X, XI, XII.—Speculum Examination of Tympanic Cavity (twenty-two views) - - - - 263

PLATES XIII, XIV.—Operations for Fibro-Myoma of Uterus (eight sections) - - - - - - 314, 316

PLATE XV.—Intra-capsular Fracture of Femur (two views) - 391

PLATE XVI.—Extra-capsular Fracture of Femur (two views) - 392

PLATE XVII.—(A.) Separation of Great Trochanter, (B.) Arthritis of both Hips - - - - - - 395

PLATE XVIII.—Tubercular Coxitis (two views) - - - 396

PLATES XIX, XX.—Coxa Vara (four views) - - - 398

PLATES XXI, XXII.—(A, B, C.) Congenital Dislocation of Hip (three views). (D.) Paralytic Dislocation of Hip - 398, 399

PLATES XXIII, XXIV.—Mycosis Fungoides treated by X-Rays (two views) - - - - - - 471

PLATE XXV.—Paraffin Injection for Nasal Deformity (two views) 491

PLATE XXVI.—Seborrhœa Corporis - - - - 605

PLATE XXVII.—Dermatitis Exfoliativa Seborrhoica - - 606

PLATE XXVIII.—Radiograph of Double Oxalate Stone in Kidney 626

PLATE XXIX.—Phospho-uratic Stone in Boy's Kidney - - 626

PLATE XXX.—Phospho-uratic Stones in Boy's Ureter and Kidney 626

PLATE XXXI.—Oxalate of lime Stone in Ureter - - - 626

PLATE XXXII.—Enlarged Sessile Prostate and Stones in an old man - - - - - - - - 627

PLATE XXXIII.—Teeth in Rickets (two views) - - - 636

DIAGRAMS.

FIGS.		PAGE
1	—Gaiffe's Static Electrical Machine	50
2.	—Wright's Motor-Mercury Break and Rectifier	51
3, 4.	—Macintyre's Couch for X-ray Work	52, 53
5.	—Apparatus with Reverser for exciting High-frequency Apparatus by Static Machine	55
6.	—Incision for Radical Operation in Adenitis	109
7, 8.	—Stay-knot for Ligatures	123
9, 10.	—Subbotin's Operation for Extroversion of Bladder	146
11.	—Temperature Chart, after Operation for Hepatic Cirrhosis	203
12.	—Structure of a seedling Fibroid Tumour	306
13–33.	—Diverticulæ in Male Urethra	340-343
34–36.	—Urethra Dilators	344
37–41.	—Instruments for treating Gonorrhœa	348, 349
42–48.	—Illustrating Treatment of Congenital Hip Dislocation	385-387
49.	—Graduated Bottle and Composition of Milk	405
50.	—Transverse Striæ on Nails (Insanity)	409
51, 52.	—Blanching of Hair in a Paranoiac	410
53.	—Herschell's Apparatus for Irrigating Bowels	416
54–57.	—Instruments for Moure's Operation on Septum Nasi	486-488
58.	—Quinlan's Syringe for Paraffin Injection	490
59, 60.	—Dilatation and Diverticulum of Œsophagus	492
61–67.	—Illustrating Radical Cure of Enlarged Prostate	555-563
68.	—Killian's Modified Speculum for Rhinoscopy	593
69	—Porcelain Roots for Teeth	635
70.	—Syphilitic and Normal Teeth	636
71–79.	—Instruments for Filling Teeth	639, 640
80.	—Trypanosoma × 1200	658
81–84.	—Illustrating Cancer of Uterus	681, 682

Contributors and Original Contributions to Medical Annual, 1903.

ROBERT ABBE, M.D., New York, Surg. St. Luke's Cancer and Roosevelt Hosps., Cons. Surg. Hosp. for Ruptured and Crippled — BRAIN AND SPINAL SURGERY

BERTRAM L. ABRAHAMS, B.Sc., M.B., M.R.C.P., Med. Reg. and Lect. on Practical Medicine, Westminster Hospital — GOUT AND RHEUMATISM

HERBERT W. ALLINGHAM, F.R.C.S., Surg. to the Household of H.M. the King; Surg. in Ord. to H.R.H. the Prince of Wales; Senior Asst. Surg. and Lect. on Op. Surg. to St. George's Hosp. — RECTAL SURGERY

JAS. CANTLIE, M.A., M.B., F.R.C.S., Lect. Charing Cross Hosp. Med. Sch.; Cons. Surg. Alice Memor. Hosp., Hong Kong — TROPICAL DISEASES

Prof. ALF. H. CARTER, M.D., F.R.C.P., Senr. Phys. Queen's Hosp.; Emerit. Prof. of Physiol. Queen's Coll., and Prof. of Med. Univ. Birmingham — HEART DISEASES

PROF. HY. DWIGHT CHAPIN, M.A., M.D., New York, Prof. of Dis. of Children, Post Grad. Med. Sch. and Hosp.; Phys. Post. Grad. Willard Park and Riverside Hosp.; Cons. Phys. Randall's Island Hosp. — INFANT FEEDING

E. HURRY FENWICK, F.R.C.S., Surg. London Hosp. and St. Peter's Hospital for Urinary Diseases — URINARY SURGERY

ARTHUR E. GILES, B.Sc., M.D., F.R.C.S.E., Surg. Out-Patients Chelsea Hosp. for Women — GYNÆCOLOGY AND OBSTETRICS

EDWARD W. GOODALL, M.D., Supt. Eastern Hosp., Homerton, N.E. — FEVERS

Prof. GRÆME M. HAMMOND, A.M., M.D., New York, Prof. of Diseases of Mind and Nervous System, Post. Grad. School and Hosp. — NERVOUS DISEASES

Prof. H. AMORY HARE, M.D., B.Sc., Philadelphia, Prof. of Ther. and Mat. Med. Jefferson Med. Coll., Phys. to Jefferson Med. Coll. Hosp., Philadelphia — THERAPEUTICS

EDWIN H. HOLTHOUSE, M.A., M B., F.R C.S., Surg. Western Ophthalmic Hosp. — EYE DISEASES

ROBT. HUTCHISON, M.D., M.R.C.P., Assist. Phys. Lond. Hosp. — GENERAL MEDICINE

ROBT. JONES, F.R.C.S., Hon Surg. Royal Southern Hosp. Liverpool — DIAGNOSIS OF HIP JOINT AFFECTIONS

THOS. N. KELYNACK, M.D., M.R.C.P., Assist. Phys. Mount Vernon Hosp. for Consumption and Dis. of the Chest — EXAMINATION OF THE BLOOD; SANATORIUM TREATMENT OF PHTHISIS

PRIESTLEY LEECH, M.D., F.R.C.S., Hon. Surg. Halifax Infirmary — GENERAL SURGERY

Prof. HY. P. LOOMIS, M.D., New York, Prof. of Mat. Med. Therap. and Clin. Med., Cornell Univ. Med. Coll.; Phys. New York and Bellevue Hosp. — PULMONARY DISEASES

JAS. KERR LOVE, M.D., Aural Surg. Royal Infirmary, Glasgow; Lect. on Aural Surg., St. Mungo's Coll. — EAR DISEASES

JOHN MACINTYRE, M.B , C.M., Surg. for Dis. of Throat and Nose, and late Electr. Glasgow Roy. Infirm.; Lect. on Dis. of Throat and Nose, Anderson's Coll., Glasgow — X RAY WORK, &C., IN MEDICINE AND SURGERY

WM. MILLIGAN, M.D., Lect. on Dis. of Ear, Owens Coll., and Hon. Surg. Manchester Ear Hosp; Aural Surg. Manchester Royal Infirm. — DISEASES OF NOSE AND THROAT

KEITH MONSARRAT, F.R.C.S.E., Assist. Surg. Children's Infirm., Hon. Surgeon Northern Hosp., Liverpool — SURGICAL DISEASES OF CHILDREN; THORACIC SURGERY

WM. MURRELL, M D., F.R.C.P., Phys. and Joint Lect. on Medicine, Westminster Hospital — CIRRHOSIS OF LIVER, SURGICAL TREATMENT

JOSEPH PRIESTLEY, B.A., M.D., D.P.H., Med. Officer of Health for the Parish of Lambeth, London — SANITATION

BOARDMAN REED, M.D. Philadelphia, Ed. of "International Med. Mag." — DIGESTIVE DISORDERS

A. D. ROCKWELL, A.M., M.D., New York, formerly Prof. in the New York Post Grad. Med. School, ex-Electro-therap. Women's Hosp., New York — ELECTRO THERAPEUTICS

F. M. SANDWITH, M.D., F.R.C.P., Vice-Director Sanit. Dept. Egypt; Sen. Phys. Kasr. el Ainy Hosp, Cairo; Prof. of Med. at Med. Sch., Cairo — DISEASES OF EGYPT

Prof. ROBERT SAUNDBY, M.D., M.Sc., F.R.C.P., LL.D., Prof. of Med. Univ. Birmingham: Phys. Gen. Hosp., Birmingham — RENAL AND URINARY DISEASES

W. SCOTT SCHLEY, A.B., M.D., Assist. Surg. Trinity Hosp. and St. Luke's Hosp., Out-Pat. Dept., New York — BRAIN AND SPINAL SURGERY

JAS. SHAW, M.D., Late Med. Supt. Haydock Lodge Asylum — INSANITY

WALTER G. SPENCER, M.S., F.R.C.S., Surg. Westminster Hosp.; Lect. on. Physiol. Westminster Hosp. Med. School — ABDOMINAL SURGERY

A. H. TUBBY, M.S., M.B., Surg. Orthop. Dept. Westm. Hosp.; Surg. Nat. Orthop. Hosp. — DIAGNOSIS OF HIP JOINT AFFECTIONS

JOS. GEO. TURNER, F.R.C.S., L.D.S., Assist. Surg. Dental Hosp., London — DENTAL AND ORAL SURGERY

J. W. THOMSON WALKER, M.B. Ed., F.R.C.S., Surg. Assist. St. Peter's Hospital for Urin. Dis. and Assist. Surg. North-West London Hosp. — VENEREAL DISEASES

NORMAN WALKER, M.D., Assist. Phys. Skin Dept. Edin. Roy. Infirm. — SKIN DISEASES

THE MEDICAL ANNUAL.

Part I.—The Dictionary of Materia Medica and Therapeutics:

A REVIEW OF THERAPEUTIC PROGRESS FOR 1902

By HOBART AMORY HARE, M.D.,

Professor of Therapeutics in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Hospital.

With an Article on "X-Rays, High-Frequency Currents, and Light Treatment," by John Macintyre, M.B., C.M., F.R.S.E., and "Electro-Therapeutics," by A. D. Rockwell, A.M., M.D., New York.

GENERAL REVIEW.

During the past year the methods of treating disease have been slowly but surely advanced along those lines of rational therapy which are so essential to success in the case of the individual patient and the true progress of medical practice. An encouraging sign of the times is the attitude of the physician of to-day, whose mental state in regard to the prescribing of drugs is best described by the sign-board at the railway crossing: "Stop! look and listen!" As with the railway so with the physician, when this rule is adhered to fewer deaths take place on account of what the legal profession calls "contributory negligence." In other words, it is more the custom at present than formerly for the physician to study the patient, not only to determine what drugs and remedial measures should be employed, but—equally important—whether the condition is one which contra-indicates a remedy instead of indicating it.

With the increasing knowledge which we possess concerning the measures employed by the system for its protection from the onset and progress of disease, and when we further regard the intricate subject of the development of toxins and antitoxins, it is perceived that the physician who throws a drug of uncertain

effect into the cogwheels of this wonderful mechanism must be possessed of extraordinary ignorance or colossal impudence. It is seen that the old motto, *nil nocere* (do no harm), is a very important one to be followed by the practitioner, and in every case the physician should look back upon his plan of treatment in each instance, not only to make note of the factors which were potent for good, but also to expose to his own view things that had better have been left undone.

At the present time, the writer is firmly convinced that we stand on the threshold of the most important therapeutic discoveries of the history of medicine. Not that new remedies are to be produced to an extent exceeding the rapidity of to-day, for many of these are not as efficacious or as harmless as those of our forefathers ; but rather that the theory of Ehrlich as to the cell, and its relation to poisons and anti-poisons, or some similar theory, will show us that the present empirical use of many valued drugs rests not so much upon the fact that they are stimulants or depressants, alteratives or eliminants as we call them, but upon their ability to aid the body in producing protective fluids or cells, or of putting aside the evil effect of toxic materials by locking up or destroying factors which, if free, would cause fatal consequences. Not ten years ago the cold bath in typhoid fever was used to reduce temperature ; now the antipyretic effect of that measure is considered the least important factor in the case, and the redistribution of the blood, the oxidation of poisons and their elimination, are the objects sought by its employment. Personally, the writer is convinced that the pharmacologists who assert that alcohol acts as a depressant, and the clinicians who believe it acts as a stimulant—in typhoid fever for example—are neither of them correct, and that ultimately it will be found that this drug acts in reality not so much by a direct stimulant or depressant effect on the circulation, as by aiding or stimulating those functions which protect the body from the ravages of disease. While it is true that such an opinion is largely hypothetical, there is enough promise in the thought to at least make it attractive.

We pass on to the consideration of several therapeutic facts which, whether characterized by success or failure, provide lessons worthy of our consideration ; and it may not be out of place to consider first those which have been weighed in the balance and found wanting. The first of these is undoubtedly so-called **Spinal Anæsthesia,** or the injection of local anæsthetics

into the membranes of the spinal cord. Theoretically, a method which prevents pain and permits consciousness is advantageous ; practically, the preservation of consciousness during a severe operation is a great shock to the system, being provocative of a mental agony which requires relief, and which, in cases of heart or respiratory disease, is usually a more serious strain on these parts than the proper employment of an ordinary anæsthetic. Again, it is a plan not devoid of danger ; it is sometimes difficult to carry out the injection ; and it sometimes fails to produce anæsthesia, while the after-effects are not infrequently more or less disagreeable.

Again, a wave of enthusiasm has swept over the profession in regard to the use of **Saline Infusions,** and while this plan of treatment in a great number of instances is life-saving, it is a fact that in its too enthusiastic use harm has been done by pouring in the fluid in greater amount and faster than the organism can take care of it, so producing pulmonary œdema, or fairly drowning the tissues of the body elsewhere.

Still another evil practice consists in the use of weak solutions of **Carbolic Acid** as a dressing for injuries of the fingers or toes, which parts not rarely become gangrenous even when solutions of only 2 or 3 per cent are employed. An interesting coloured illustration of this condition, occurring in the practice of Dr. Harrington, of Boston, will be found in the last (ninth) edition of my work on " Practical Therapeutics."

Closely related to this subject is the production of **Skin Lesions** of more or less severity by the action of remedies which are given to affect other portions of the body. Not infrequently it happens that in this manner aberrant and obscure lesions of the skin take place which puzzle even the expert dermatologist, which fail to yield to ordinary measures, and only get well when the administration of the drug is stopped. Quinine, iodide of potass, copaiba, and the coal tar products are the drugs which are most frequently concerned in producing such manifestations ; but it is not to be forgotten that a very large number of other remedies are capable of causing skin lesions in susceptible persons.

Still another illustration of lack of careful consideration of the action of a remedy is to be found in the so-called **Cacodylates,** which have been urged upon us most strongly by French physicians during the past eighteen months. For a time certain French journals fairly teemed with articles, describing grave

cases of disease in which the use of the cacodylate of sodium or other preparations produced results which were well-nigh marvellous ; patients with tuberculosis were said to gain many pounds under their magic influence. Yet the thoughtful therapeutist must have recognized that it was doubtful if the cacodylates, as arsenical preparations, could be qualified to far outstrip older preparations of arsenic. This therapeutic bubble was finally pricked by Professor Fraser, of Edinburgh, who pointed out that the cacodylates are feeble in arsenical properties, and that they part with their arsenic in the body so slowly that it is impossible for the arsenic to be disassociated freely enough to exert either a toxic or a therapeutic effect to any great extent. In other words, to administer the cacodylates when an arsenical influence is desired, is worse than to administer an insoluble salt when a soluble one can be found ; and the fact that large doses of cacodylates are incapable of producing poisonous symptoms indicates very positively that smaller doses are incapable of producing beneficial influences equivalent to those caused by the old-fashioned Fowler's solution.

In the *Medical Annual* for 1896 the writer of this article called attention to the abuse of **Strychnine** as a circulatory stimulant in the course of prolonged exhausting disease, pointing out that this remedy is not a true stimulant, but a whip, and ought to be reserved for attacks of collapse or to meet a crisis during the course of an acute malady ; that its continued administration, in a case of typhoid fever for example, fails after a certain length of time to produce a true stimulant effect, and simply produces nervousness and tachycardia. Side by side with this mistaken use of strychnine is, we believe, the abuse of **Nitroglycerin,** which, for some curious reason, has obtained in the medical profession the reputation of being a cardiac stimulant. As a matter of fact it is extremely doubtful if nitroglycerin ever acts in this manner ; for while it is true that the first consequence of its administration may be an increase in the rapidity of the heart, its dominant influence is exercised upon the blood-vessels, so that they are relaxed, and, as a consequence, the heart has less work to do. It is manifest, therefore, that the drug may produce good results when administered to a patient who has a failing heart ; not because it stimulates this organ, but because it diminishes its work. For this reason it may be very valuable if high arterial tension is present ; but, on the other hand, to administer nitroglycerin to a patient suffering from cardiac

failure as a result of exhaustion or collapse arising from other causes than myocardial disease or high arterial tension, is not only an abuse of the remedy, but quite as likely to produce harm as good, since the faintness of the patient may be quite as dependent on vascular relaxation as upon failure of the heart.

Not a few other instances of this abuse of therapeutic procedures could be named, but it is more edifying to call attention to real advances, although the discovery that certain methods are ill-advised is often of as great value as the finding that others are useful.

A novel method of treating **Narcotic Habits** has been brought forward during the past year by Dr. M. K. Lott. While the drug which he employs has frequently been given in these conditions by other practitioners, the important point in his method is its administration in massive doses. This drug is **Hyoscine,** and there can be no doubt that in a certain proportion of cases its administration by the hypodermic needle in doses of as much as $\frac{1}{100}$ of a grain every two to four hours, day and night for days at a time, will to a certain extent modify the acute symptoms which are apt to follow the sudden withdrawal of a narcotic drug from a patient who is accustomed to its continued use. More remarkable still, the administration of such large doses does not seem to produce any serious effects, and the patient very frequently seems not only to have been carried through the storm of his convalescence by the use of this remedy, but also to be, to a certain extent at least, deprived of his desire for further doses of the narcotic, at least for a time. Another remarkable fact concerning this method of treatment is that although these large doses may produce talkative delirium or somnolence, the patient is nearly always ready and willing to carry on a rational conversation with the physician if his attention is maintained by questions which stimulate his intellect. I have already reported a number of cases which I have treated in the manner suggested by Dr. Lott; my experience leads me to a belief that it is of great value, and it is my intention to employ it in other cases as they come before me.

Within the last few months attention has been called to the value of **Cocaine** as an antidote to acute **Opium** or **Morphine Poisoning.** Our knowledge of the physiological action of this drug and of that of morphine renders this application of cocaine rational; and the clinical results which have been reported by

certain observers seem to endorse experimental researches which have been made along this line.

We are also obtaining very definite conclusions as to the exact value of suprarenal gland, and its active principle known as **Adrenalin.** It is claimed by some persons (notably by Dr. Abel, of Baltimore) that adrenalin does not represent the true active principle of suprarenal gland, and that epinephrin is in reality the true active principle. With this physiological and chemical discussion the practical clinician has little to do; the fact remains that adrenalin is very widely employed in place of suprarenal gland when the local constringing effect of this substance is desired, and yields results which are satisfactory to the practitioner, since it possesses all the advantages of the dessicated gland itself and none of its disadvantages. The physiological properties of adrenalin are certainly very extraordinary; and therefore, as with most drugs which are possessed of such extraordinary powers, there is danger of its being abused, intentionally or otherwise. On the other hand, there can be little doubt that it is a remedy which has come to stay, and that it meets indications which no other drugs can approach. As a matter of fact it has been employed largely by physiological experimenters who have been desirous of determining its effect upon the animal organism, and has come to be recognized as a definite medicinal preparation. Even those who are most enthusiastic in regard to its value appreciate that all remedies have their limitations, and in some instances may be capable of doing damage if wrongly employed; unqualified praise of a drug usually indicates that the writer has not had a sufficiently large experience to meet with disagreeable effects, or has been too blinded by his enthusiasm to recognize that under certain circumstances it has failed to produce the influence which he desired. It is absurd to suppose that a remedy can be employed in widely different conditions and always produce identical results, and still more absurd to suppose that it may be employed haphazard whilst we have imperfect knowledge as to its limitations, without at times causing effects which may be considered disadvantageous. As I have pointed out before, in speaking of this substance, any drug which possesses power for good will, if improperly administered, produce evil results; and it is only a substance practically impotent which never has any evil influence ascribed to it. As a matter of fact, it is extraordinary that a remedy possessed of such powerful physiological properties

should have been used so widely and so carelessly, and yet have caused so few symptoms which have been considered in any way alarming. Certain conditions are manifestly strong indications for its employment, while others certainly contra-indicate its use. As it is undoubtedly an internal secretion which is naturally poured out into the system constantly, but in infinitesimal quantities, it is manifestly wise when it is used internally to give it in frequent but very minute doses, since large doses at long intervals can at best produce powerful but fleeting effects.

Among the instances in which the employment of suprarenal gland or adrenalin cannot be expected to do much good, may be mentioned intestinal hæmorrhage in typhoid fever, in which condition its administration, by contracting the blood-vessels in all portions of the body, may tend to increase hæmorrhage ; and the same statement holds true in regard to hæmoptysis or hæmorrhage from other vessels of considerable size. On the other hand, when applied to the nasal mucous membranes, or even to the cavity of the post-partum uterus, its powerful hæmostatic effect finds its full sphere of action. Whether further experience will lead the profession to the employment of this substance in internal medicine, as a circulatory stimulant in conditions of disease, is as yet undetermined. It undoubtedly produces good results in certain instances, where we know there is relaxation of the blood-vessels ; but its effects upon the various organs of the body in different diseases are too little understood to justify us in speaking positively as to its universal value in these conditions.

Another point which should not escape the attention of the general practitioner has been emphasized during the past year by Dr. Patrick Manson, in one of his able contributions to the etiology and treatment of malarial infections. It is well to remember that in the treatment of malaria it must be seen to that the **Quinine** is absorbed from the stomach, since it is precipitated and rendered insoluble by the alkaline juices of the intestines ; and for this reason cases of malarial infection will best be treated by the use of loose quinine crystals in soft elastic capsules, rather than by the use of pills or tablets.

Again, it is by no means an uncommon thing for quinine to be administered for the relief of fever on the general supposition that the cause of the fever is malaria, when careful investigation will reveal the fact that the malarial parasite is in no way

responsible for the illness, which in reality may be typhoid fever, sepsis, or tuberculosis. The rule emphasized by Manson has already been laid stress upon by other able writers, namely, that given a case of suspected malarial fever in which quinine fails to give relief at the end of a few days, the physician should arrive at the conclusion that the fever is not malarial in origin, but due to some other cause ; and there is certainly no justification for giving massive doses of quinine day after day to patients who are simply suspected of being the hosts of malarial germs.

Another point of considerable value has been emphasized during the past year by a research published by Stockman, of Glasgow, namely, the importance of considering the base before administering compounds containing **Potassium.** The researches of Sydney Ringer and others many years ago proved very positively that potassium is a powerful depressant poison to all protoplasm ; yet for some unexplained reason physicians persist in employing the iodide or bromide of potassium when they desire to produce the well-known sedative or alterative effects of such drugs, though the iodide of sodium would be as efficacious. Yet the potassium base renders large doses of these compounds distinctly depressant, whereas sodium would not exercise such an influence. Physicians of experience well know that even such an innocuous preparation as potassium citrate, if given in very large doses in fever and expectorant mixtures, is capable of producing depression and relaxation of the skin, and we would strongly advise the employment of salts of sodium or strontium in place of potassium salts whenever they can be obtained.

DICTIONARY OF REMEDIES.

ACETOZONE.

Benzyl-acetyl-hyperoxide, the technical name of this preparation, has been introduced during the last year as a remedy possessing very distinct **Antiseptic** properties. Attention has been called to it chiefly through the work of Novy, of Ann Arbor, Michigan, and Wasdin,[1] a surgeon in the United States Marine Hospital Service at Buffalo, N.Y. Wasdin reports very excellent results from its administration in the treatment of **Typhoid Fever,** The method that he employed was to move the bowels of the patient thoroughly by grain doses of calomel, and also to administer from 1,500 to 2,000 c.cms. of a twenty-four hours-old solution of acetozone daily, the diet consisting of milk diluted

with acetozone solution. In some instances the acetozone was given in capsule in doses of 5 grains with sugar of milk. The primary effect of this drug is to cause a great increase in the secretion of urine, and a marked decrease in the odour of the stools. Plate cultures show great diminution in the number of germs found in the stools, in one case the dejection being absolutely sterile during the second week of the fever. Wasdin believes that acetozone is innocuous, as he has never seen any deleterious symptoms arise from its use ; that it is an efficient germicide when conditions exist which favour its hydrolysation ; that it is readily excreted ; and that it acts as an efficient intestinal antiseptic. The drug has also been used as a surgical dressing in cases of infection with the bacillus *Aerogenes capsulatus*, with apparently extraordinary results.

REFERENCE.—[1]*Therap. Gaz.* May 15, 1902.

ALCOHOL.

The *Boston Medical and Surgical Journal* in a recent issue has devoted very considerable space to a series of papers read before the Suffolk District Medical Society of Massachusetts, in which a summary is given of our knowledge concerning the physiological action and clinical value of alcohol.

In the first paper, by Dr. Hewes, is a very exhaustive consideration of many of the experimental researches made by well-known pharmacologists, and by others not so well known. As the author points out, the special purposes for which alcohol is generally used as a therapeutic agent in medicine are as a heart stimulant, as a nerve stimulant or general tonic, as a digestive stimulant, as a food, and as a general remedial agent in acute infectious conditions. In regard to its value as a stimulant, Hewes concludes that the good opinion which most of the profession hold concerning its influences is fictitious, and not based upon any true conception of the influence which it actually exercises. Any stimulant effect which it seems to produce he thinks is due to the reflex irritation to the nervous system which is caused by the entrance of an irritant substance into the stomach, and he denies that under its influence any true stimulation of the circulatory system takes place. He does not side even with the school of Binz and his followers, who hold that alcohol when mixed with the blood first stimulates and then depresses the nervous system ; but, on the contrary, with Schmiedeberg and others, who hold that from the beginning it is a depressant.

Not only does he do this, but he suggests that clinical experience is entirely in accord with these pharmacological investigations, and cites experiments which have been made upon troops in the Arctic, in the tropics, and elsewhere, which have shown that alcohol always exercises an influence which is deleterious, and never one which is advantageous. Hewes believes, after a careful study of the literature, that alcohol can be considered in one sense **a Food,** in that it prevents tissue waste, and by its combustion perhaps adds force to the body. But while he believes that physiologically this is true, he goes on to say that it may not be advisable to administer alcohol for this purpose in medicine, since while it may be burnt up in the body and so afford energy, its effects are so deleterious and harmful that its evil influences out-balance any effects for good which it may produce ; and he believes that this holds true not only in health, but in disease.

It is interesting to note in this connection that at the last meeting of the American Physiological Society, Lee and Gallant reported the results of the influence of alcohol on muscle, employing ethyl alcohol in various percentages and injecting it into frogs in quantities proportional to the weight of the animals. What may be fairly considered medicinal doses caused the muscles of the frog when stimulated to contract more quickly, relax more quickly, perform a greater number of contractions in a given time, and do more work than the muscle without alcohol, while the onset of fatigue is at the same time delayed. In some instances the increase in the amount of work performed was more than 10 per cent. A personal acquaintance with the physiological work of Dr. Lee gives us the utmost confidence in any results which he may reach, and it seems to us that his conclusions have much bearing upon the important problems here discussed. These same investigations naturally found that very large quantities of alcohol were detrimental to muscular action.

Hewes thinks that under certain circumstances alcohol may act as **a Narcotic,** and believes that its employment under these circumstances is rational ; but here again he thinks that it is a narcotic which possesses many disadvantages which are not possessed by other narcotics not so commonly employed, and asserts that in pneumonia his conclusion has been, from practical experience, that it is of no particular value at any time in the disease, or at least that any influences for good are more than

counterbalanced by influences for harm. In concluding, he seems to be inclined to "ride two horses," saying that the intention of his review is not to deny that alcohol has any value as a therapeutic agent, or that all its traditional use in such a capacity is irrational, but simply to present a critical study of its use, so that its employment may be more carefully considered. This object is certainly most laudable, but it gives a far different impression of the author's attitude from the preceding text, in which he is arguing for the casting aside of alcohol from our therapeutic armamentarium. That the drug is undoubtedly sadly abused by physicians, not to speak of others, is of course well recognized.

In contra-distinction to the article just quoted is one by Dr. Shattuck, one of the faculty of the Harvard Medical School, which has caused much discussion in the columns of the medical journals, and is entitled "A Clinician's Estimate of Alcohol as a Therapeutic Agent." Dr. Shattuck, well recognizing that certain pharmacological investigators have condemned alcohol, on the other hand speaks most positively concerning the great advantages from its employment in clinical medicine; and he again is followed by Dr. Whittier, of Boston, who entertains profound convictions of the therapeutic value of this drug, although he is careful to emphasize the fact that he does not mean the alcohol of the shops, nor the brandies, whiskies, rums, or wines so commonly sold, but rather that form of absolute alcohol which is guaranteed and properly prepared, and which, if properly diluted, becomes a valuable remedy. Naturally, Whittier and Shattuck are both opposed to the abuse of the drug, and emphasize the fact that conclusions drawn from laboratory work are not in harmony with bedside observations in the matter under discussion. Finally, Whittier concludes by saying that he is unable to comprehend why men who are insistent on the utmost purity in drugs, persistently employ mixtures wherein alcohol of doubtful quality is employed.

We have, therefore, the opinions of two active clinicians opposed to the opinion of another, of considerable clinical experience, but not so extensive as that of those just quoted. It is not fair to the discussion, however, to ignore a paper by Dr. Cutler in the same issue, in which the question of alcohol in combating septic processes is discussed. We are entirely in accord with Dr. Cutler that in the presence of most forms of infection (in the sense of septic infection), alcohol does not really

possess the value which has been credited to it. We cannot help holding very strongly the opinions which we have already reiterated several times elsewhere in regard to this important subject.

Without the slightest intention to disregard or discredit the accurate investigations of a very considerable number of laboratory workers, it still seems to us incredible that the world at large, and generation after generation of physicians, should have been so completely misled as to the action of a remedy as to believe that it was useful as **a Stimulant,** when in reality it was not only useless, but harmful. While it may be true that the administration of alcohol in certain stages of typhoid fever does not really exercise a stimulative influence upon the circulatory apparatus itself, nor upon the nervous system, there can be no doubt that its proper administration under these circumstances does improve the condition of the circulation, digestion, and nervous apparatus. Again and again, when alcohol has been properly employed in the treatment of this malady, we have seen it produce a satisfactory condition of the circulation which before its use had been distinctly unsatisfactory. It is a most common experience for physicians with large hospital facilities to meet with patients who at the end of ten or fourteen days of typhoid fever manifestly have a feeble pulse and distant heart-sounds, and in whom a more normal pulse and more distinct heart-sounds can soon be produced if alcohol is properly given them. In our experience no other drug does as well in the condition that we have named ; although we do not mean for a moment to intimate that all patients are benefited by it, since some undoubtedly manifest idiosyncrasies in regard to the effect which it exercises upon them.

Alcohol in Carbolic Acid Poisoning.—The employment of 95 per cent alcohol to surfaces with which strong solutions of **Carbolic Acid** have come in contact, for the purpose of overcoming the corrosive influences of this acid, has received additional attention during the past year, and a considerable number of reports have appeared which indicate that a true antidotal influence is exercised, but the explanation of this is difficult to find. Reports have also been made in which the internal use of alcohol in large quantities when carbolic acid has been swallowed in poisonous amount, have seemed to act very beneficially.

ANÆSTHESIA DURING SLEEP.

The question as to whether it is possible to produce surgical anæsthesia by the administration of chloroform while the patient is asleep, without causing a struggle or a temporary return of consciousness, has very frequently been discussed in the lay journals, in medical journals, and by lawyers in medico-legal cases, when the claim has been made that the drug was employed to overcome sleeping persons. While it is quite true that most individuals in health would be sufficiently disturbed by the use of ether to cause them to awake, it is also true that it is entirely possible to give chloroform to a sleeping patient without waking him. This matter would not be of very great importance were it not that now and then claims are made that it is impossible to use chloroform in this way without seriously disturbing the patient. Some years ago, in the neighbourhood of Philadelphia, the writer of this article gave expert testimony that the chloroformization of a patient during sleep was entirely possible. In a very considerable number of instances surgeons have given chloroform, anæsthetized the patient, and performed the operation, and the patient has returned to consciousness to find the operation completed with no previous knowledge of the attempt. Still more recently the writer of this article has given evidence, in the trial of a man by the name of Patrick, who was accused of the murder of an aged man named Rice, that the administration of chloroform to a sleeping patient was possible, although other witnesses asserted that this was impossible. As a matter of fact, medical literature contains quite a large number of cases which have been reported, proving that the writer's testimony was correct. Paugh[1] has reported three cases in which he accomplished this in children ranging from four to nine years of age; while Stone, of Cleveland,[2] also reports similar success in children, and instances in which he was successful in anæsthetizing adults with chloroform while sleeping. Stone further reports an instance in which a resident physician at one of the Cleveland hospitals chloroformed a colleague who was soundly asleep at the time that the anæsthetic was given.

REFERENCES.—[1]*Jour. of Amer. Med. Assoc.* May 18, 1901; [2]*Cleveland Med. Jour.* Jan. 1902.

ANTITOXIN, DIPHTHERITIC.

Now that antitoxin has come to be recognized as an absolute necessity in the treatment of **Diphtheria,** the question arises as to whether the serum undergoes so great a decrease in its

potency, after the lapse of some months, as to be useless. The reply is in the negative, if the serum has been carefully put up in the proper form and hermetically sealed. It is quite true that there is a certain decrease in potency ; but, on the other hand, in the presence of a case of diphtheria it is without doubt the duty of the physician to administer such antitoxin as he may be able to obtain, and in France we understand that the Minister of the Interior has given directions that physicians shall never wait for a fresh supply, but use *at once* that which they have on hand. Even if the serum has been kept for as long a period as a year, so that a slight sediment is formed, this does not indicate in any way that it is valueless ; and when we consider the importance of administering antitoxin on the first day the membrane appears, it is manifest that delays must not occur. For the mortality when antitoxin is given on the first day is as low as 2 per cent, and on the second day as low as 6 per cent ; while if it is given as late as the third day, the mortality is 30 per cent ; and when as late as the fourth day, 50 per cent.

Quite a number of clinicians have also reported during the past two years the excellent results which they have obtained by the administration of anti-diphtheritic serum in maladies other than diphtheria. Some have recorded good results from its use in **Asthma,** and others have asserted that it possesses great value in the treatment of inflammatory conditions associated with **Septic Absorption,** whether the condition be of staphylococcus or streptococcus infection. Whether the diphtheria antitoxin is really valuable in these conditions remains to be determined. But in any event the observation is of interest. Amongst others we may quote the experience of Paton,[1] of Australia, and of Landrieux and Legros[2] upon its employment in the treatment of **Croupous Pneumonia.**

REFERENCES.—[1] *Therap. Gaz.* 1902 ; [2] *Jour. des Pract.* 1902.

APOMORPHINE HYDROCHLORATE.

Coleman and Polk[1] reach the following conclusions as to the value of apomorphine in the treatment of **Alcoholism** :—

(1). To obtain a hypnotic action with apomorphine it should be given hypodermically.

(2). The dose cannot be fixed. It is best to begin with a small dose—$\frac{1}{10}$ grain or less—and to repeat this or give a slightly larger dose within a short time. Further doses should not be given after vomiting occurs until several hours have passed.

(3). Doses repeated in two or three hours have but little beneficial effect.

(4). The administration of apomorphine should not be repeated in patients who are weak.

(5). The duration of the hypnotic action is only a few hours, and when the patient awakes his condition is practically unchanged, except in "ordinary drunks."

(6). The best results are obtained from apomorphine when it is followed in two or three hours by some recognized hypnotic, as bromide, chloral, paraldehyde, etc.

(7). Solutions of apomorphine are unstable, and should be freshly made for use. Old solutions should never be used.

(8). Apomorphine may be employed as a hypnotic in selected cases of alcoholism. The best results were obtained in "ordinary drunks" and in cases verging on delirium tremens. But in some of these cases the drug has no effect whatever.

(9). The administration of apomorphine to patients in delirium tremens is, in the writers' experience, without beneficial results, and may even be attended with danger from its depressing action.

The above analysis represents in the main the results obtained with apomorphine in all the 300 patients (alcoholic) to whom the drug was administered.

REFERENCE.—[1]*Amer. Med.* March 8, 1902.

ASPIRIN.

During the past year the employment of aspirin has seemed to meet with increasing professional favour where it has been employed as a substitute for the salicylates. Personally, we have never had experience with it in the treatment of **Rheumatism,** but as an **Intestinal Antiseptic** to supplant salol it has seemed valuable. It is best administered in doses of from 5 to 10 grains as an intestinal antiseptic, put up in capsules, and given after meals.

ASTEROL.

Asterol[1] is a mercurial compound possessing a neutral reaction, and is soluble in water. It is odourless, and appears as a whitish, grey powder, while its bactericidal properties are claimed to be equal to those of corrosive sublimate. It has the advantage that it does not precipitate albumin, nor act as an irritant to wounds, nor does it injure instruments; and as it does not make a cloudy solution, it has an advantage over antiseptics

like lysol and creolin. The strength in which it is employed varies from 2 to 5 per cent.

REFERENCE.—[1]*Therap. Monats.* July, 1901.

BORAX AS A FOOD PRESERVATIVE.

Vaughan and Veenboer,[1] from their studies and reading of the literature, draw the following conclusions :—

(1). The use of borax or boric acid as a preservative in butter and cream in the quantities specified in the recommendations of the English Commission, is justified both by practical results and by scientific experimentation.

(2). The dusting of the surfaces of hams and bacon which are to be transported long distances with borax or boric acid, not exceeding 1·5 per cent of the weight of the meat, is effective, and not objectionable from a sanitary standpoint.

(3). Meat thus dusted with borax or boric acid does not become slimy, because the preservative thus used prevents the growth of aerobic peptonizing micro-organisms.

REFERENCE.—[1]*Amer. Med.* March 15, 1902.

CACTUS.

Some conclusion may perhaps be at last reached as to the exact position of *cactus grandiflora* as a **Cardiac Stimulant.** We believe that the general consensus of opinion in the profession at the present time is that it is by no means the equal of digitalis or strophanthus for the purpose of increasing the activity and the power of the heart ; but that it possesses distinct value in certain cases in which the heart sounds seem to lack quality and tone, and in which irregularity in the action of this organ produces more or less annoyance to the patient. In other words, it is one of the more feeble cardiac stimulants, or heart steadiers, which should be borne in mind when treating cases of disordered cardiac function.

Our attention has been called to this matter once more by a paper written by Zelenski from the clinic of Parenski in Krakau.[1] In his cases the patients suffered from valvular lesions, such as aortic insufficiency and aortic stenosis, or with mitral lesions, resulting in œdema of the extremities and ascites. He employed a fluid extract of the drug, and the results which he obtained led him to believe that it possesses very distinct therapeutic advantage. Such has been our experience, rather in functional disorders than in valvular lesions.

It is stated[2] by others that cactus or *cereus grandiflora* is an

energetic **Heart Stimulant,** particularly useful in cases of aortic insufficiency and dilatation. It is also very useful in **Nervous Palpitation**, and in some instances acts very much better than digitalis. Its lack of toxicity permits its long administration, and Huchard has recommended that it be given in the form of the fluid extract in the dose of 15 minims a day ; in the form of the tincture in the dose of 20 to 40 minims. The following prescription is suggested in cases of cardiac irritability dependent upon intestinal disorder :—

℞ Fl. ext. cereus grandiflora | Essence of pancreas ℥iij
Tinct. nux vomica āā ℥iij |

A teaspoonful after each meal.

When there is anasarca and œdema of the lower extremities, the following prescription may be given :—

℞ Fl. ext. cereus grandiflora ℥iij | Compound tinct. of gentian ℥iij
Fowler's solution gtt. xl |

A teaspoonful three or four times a day.

In cases where there is circulatory feebleness as the result of sexual excess :—

℞ Fl. ext. cereus grandiflora | Glycerin ℥j
Tinct. of nux vomica āā ℥iij | Comp. tinct. gentian ℥ij
Ext. of damiana fl. ℥iv |

A Teaspoonful after each meal.

In uterine affections, such as endometritis and leucorrhœa, with circulatory feebleness, the following may be given :—

℞ Fl. ext. of cereus grandiflora, | Glycerin
Ergotine āā ℥iij | Tinct. of gentian āā ℥ij

A Teaspoonful three or four times a day.

References.—[1]*Klin. Therap. Woch.* June 1, 1902 ; [2]*Jour. de Méd. de Paris*, April 6, 1902.

CAMPHOR.

Bohlen has reported two cases in which marked **Delirium** followed the use of moderate-size doses of camphor. The first case was a man suffering from heart disease, who received ¾ of a grain every two hours. In the second case a woman (also suffering from heart symptoms) received the same dose. After each of these patients had received about 9 grains a persistent delirium set in, which ceased as soon as the camphor was stopped.

CARBONATE OF CREOSOTE (CREOSOTAL).

W. H. Thomson[1] asserts his belief that this drug exerts a special effect upon the course of **Pneumonia,** and that this is rendered probable by the peculiar course of the temperature

after its administration, a fact which has been noted and well illustrated in many cases. Thus the disease terminated in his cases by lysis in twelve, and by crisis in only five. In a number of them a fall in the temperature of from one to three degrees occurred within twenty-four hours after beginning this drug, but the next day it would rise again, and so continue with a very irregular course for a number of days before it reached normal.

Carbonate of creosote, or creosotal, seems also to affect favourably the very undesirable complication in pneumonia, **Tympanites,** which was pronounced in five patients. As the author uses this drug freely in the treatment of **Phthisis,** he has been struck with its greater toleration by the stomach for prolonged periods than any other agent of this class, such as creosote itself, or the guaiacol carbonate. In pneumonia he prefers to give it in 15-grain doses every two hours, night and day, or 180 grains in the twenty-four hours, which is about three times the amount prescribed by Dr. Weber. No depressing effect has ever been noted by it on the circulation when so administered, nor need there be any fear entertained of its acting injuriously upon the kidneys, even if they were previously diseased. In one patient, a lady with general anasarca, hæmaturia, and abundant tubercle bacilli in the urine, whom the writer saw in consultation three years ago, creosotal was taken continuously for nine months, after which the bacilli wholly disappeared from the urine, and she is now in good health. The author's usual formula for administering it is :—

℞ Creosot. carbonat.	ʒiv	Aquæ menthæ, q.s., ad.	Oss
Glycerin	ʒj		

M. Dose : Tablespoonful in water

Reference.—[1] *Med. Rec.* Feb. 1902.

CAUSTICS IN THE TREATMENT OF CARCINOMA.

Robinson,[1] in an article on this theme, asks the question, If caustics are employed, what result can be obtained ? Can the pathological tissue be destroyed, or removed, or changed in molecular constitution by the use of caustics ; and, if so, how do these results compare with those from excision ?

These agents have been used for many years, both by ethical members of the profession and by those who advertise. Certain caustics, judiciously chosen and properly used, are, in the majority of cases of cutaneous cancer, far superior to the knife as a surgical

measure, both as regards the complete removal of the disease and the subsequent deformity from the operation. He who sneers at the use of caustics in any and every case, has either had no experience to amount to anything in that direction, or the cases that have come under his observation have not been treated upon correct principles.

All caustics act as injuring agents upon the tissues, and the amount of injurious action depends upon the caustic employed, the strength of the agent, the duration of its action, and the vulnerability of the tissues acted upon. No caustic should be employed that does not, directly or indirectly, quickly destroy the morbid tissue. Some caustics destroy by chemical action, others by killing the vitality of the tissues. As the former destroys normal and pathological tissues about equally, it follows that the caustic that acts upon the vitality of the tissues is preferable, if the law be true that pathological tissue is destroyed more quickly than the normal by such agents. We see from this standpoint that with our present knowledge **Arsenious Acid** is the agent that usually gives the best results, enabling the disease to be removed with the slightest amount of deformity from the operation.

The caustic agents which have been most generally employed in this disease are nitrate of silver, nitric, sulphuric, and hydrochloric acid, acid nitrate of mercury, arsenious acid, chloride of zinc, and caustic potash. With these agents tissue can be destroyed to a greater or less extent, according to the agent employed. Some of them, such as nitrate of silver, act very slowly and very superficially, while others, such as caustic potash, act quickly and deeply. Mild escharotics should not be employed, for the following reasons : With the nitrate of silver, for instance, only a portion of the tumour can be destroyed at one operation. As the tissue of the tumour area outside the necrosed part soon recovers from the injury, a condition of reaction after injury occurs. There is more blood in the part, and the lymph channels are enlarged ; that is, the condition is favourable for increased proliferation of the epithelial cells and their further invasion of the tissues. The same reasoning holds true of all the mild caustics. Such treatment leaves the patient in a worse condition than if no treatment had been employed.

The three strong escharotics—*chloride of zinc*, *caustic potash*, and *arsenious acid*—differ in their action, but with any one of them all of the pathological tissues can be destroyed.

Chloride of zinc, alone or in combination, as in Bougard's paste, for instance, has considerable diffusive power, and great affinity for the water of the tissues, thus in a short time producing a dry necrosis of considerable extent. The greater part of the necrosed tissue can be removed with a scalpel the following day, a new application of the paste made, and the treatment continued until all the tissue has been acted upon and necrosed. The disadvantage of this caustic is that it destroys normal tissue almost as quickly as the pathological, and on this account in tumours of considerable extent should only be used to destroy the main mass of the cancer, and its use be followed by other agents. It is very valuable in **Papillomatous Epitheliomata,** as its use is not accompanied by hæmorrhage. In this form of cancer other agents should be employed.

Caustic potash has great diffusive power, has strong affinity for the water of the tissues, and produces a rapid necrosis, with liquefaction of the tissues acted upon. The necrosed tissue is permeable, so the action of the caustic continues for some time after the application has been made. This prolonged action must be taken into consideration and utilized when treating a case. The rapid liquefaction of the tissue enables the operator to easily remove the softened necrosed mass, and continue the use of the potash until he believes the required action is obtained for the complete removal of the disease. As a result of the use of caustic potash the tissues become very rapidly infiltrated with serum, and the lymph channels become greatly dilated.

REFERENCE.—[1]*New York State Jour. of Med.* Feb. 1902.

CHLORAL.

Hallopeau has called attention to the **Counter-irritant** influence of chloral hydrate when it is applied externally. The drug is spread upon diachylon plaster in a proportion of 45 grains to a surface equalling about four inches, and this is then applied to the skin, which has been previously anointed with lanolin or ordinary vaseline. In fifteen minutes the patient notices a sensation of warmth, which increases gradually to burning. The plaster is then removed, and the reddened part covered with cotton wool, and twenty to thirty minutes later a blister will be found. Often a sufficient quantity of the chloral seems to be absorbed to produce sleep, and therefore the drug must be used with caution when applied externally.

CHLORETONE,

Originally introduced as a local anæsthetic, and hypnotic when taken internally, has been proved to possess very excellent **Antiseptic** properties when employed as a dusting powder for various forms of injury, and on chronic inflammatory areas where breaking down of the skin has taken place. Chloretone itself is unnecessarily concentrated when employed pure, and it has been found that the best results follow its employment as a dusting powder, when it is diluted with about equal parts of boric acid. Under these circumstances, it has been found to be most useful in the treatment of suppurating **Buboes,** in **Chancroids,** and in some infected **Wounds.** Borochloretone[1] has also been used over leg ulcers with advantage, and applied to the suppurating surfaces following burns. In all of these conditions it possesses not only the advantage of acting as a drying and antiseptic powder, but also of acting as a local anæsthetic, and thereby diminishing pain.

Chloretone has been tried by many practitioners, and notably by Cappelletti.[2] He tried it in 25 cases of mental disease, and found that the duration of sleep produced by the drug varied from about two to five hours, according to the disease and the condition of the patient, and that sleep generally came on in thirty-seven minutes to two and a half hours. From 15 to 20 grains was commonly employed, and as much as 30 grains may be given. The drug did not affect the pulse or respiration, and the reaction was not accompanied by an unpleasant symptom, neither were the digestive system or the secretions disturbed.

References.—[1]*Therap. Gaz.* 1902; [2]*Rif. Med.*, Dec. 3, 1901.

CHLOROFORM.

Galloway[1] writes as follows: A few days ago a druggist handed me a bottle marked "Squibb's Chloroform," and said that it had been returned to him by a physician, with the statement that it contained so much chlorine that it could not be used for anæsthetic purposes. The druggist made inquiry, and found that it had been used at night in the presence of an open gaslight. The druggist wished to know whether it contained chlorine or any other injurious impurity. On making the appropriate tests, it was found to conform to the pharmacopœial requirements, containing no free chlorine, no acid, or other impurity. Some of it was then used to anæsthetise a patient for an operation lasting forty minutes, and its effects were all that could be desired of chloroform.

Galloway recounts this fact to call attention again to the **Irritating Gas** which is formed when the vapour of chloroform comes in contact with a light or fire. Chloroform is not readily combustible, yet it will burn when the conditions are favourable. The products of this combustion are free chlorine and some very irritating compounds of chlorine, and deaths have been caused by inhaling the mixture so produced at operations, where chloroform has been used too freely and without any precautions. All discomfort and danger may be avoided by hanging a towel before the gaslight, and keeping the towel moistened with ammonia water throughout the operation. There is no occasion to fill the room with the fumes of ammonia; the amount necessary is small, and it is seldom that the operator or his assistants detect its presence. There is little occasion to question the purity of the chloroform or ether at present in the market, and the frequent complaints about impurities in the anæsthetics are usually due to ignorance of such facts as are set forth in this communication.

REFERENCE.—[1] *Jour. Amer. Med. Assoc.* May 17, 1902.

CITRONELLA.

Now that the **Mosquito** is recognized as being so important a factor in the spread of malarial infection, the recommendation of McIntosh that oil of citronella be employed to protect the skin is worthy of some consideration. He employs oil of citronella and alcohol in equal parts, and directs that this mixture shall be applied freely to the skin wherever it is exposed to mosquito bites. When this is on the skin, it is said that mosquitoes will not make an attack.

CLIMATE.

Much discussion has arisen as to the exact value of high altitudes in the treatment of various forms of **Pulmonary Tuberculosis,** and so many men of experience have strongly recommended such climatic treatment in this disease, that many of the profession have come to consider it not only the only cure, but that it is suitable for all cases. Manifestly, no remedial measure meets the needs of every individual, and so there are certain cases of pulmonary tuberculosis which are probably not benefited by a residence at a high altitude. That a residence at a high altitude produces an increase in the richness of the blood in red cells and in hæmoglobin, is pretty well determined; and this improvement in the state of the blood is of course a great benefit to the patient. Further than this, the atmospheric

conditions require greater pulmonary exercise; and this by increasing the activity of the lung, often aids in arresting the tubercular process. Attention has once more been called to this important matter by Dr. Bridge, of Los Angelos, California, who has brought forward certain views which are quite antagonistic to those just stated. Instead of believing that a high altitude is beneficial by reason of the fact that it expands the lungs, he takes the other point of view, and states that shallow breathing is important and beneficial for a tuberculous patient; and even goes further in making the statement that no breathing would be better still, on the ground that it is a good rule to put a sick organ at rest. We can readily understand that in the presence of acute tubercular disease Dr. Bridge's assertion may hold good, but cannot agree with him in regard to semi-chronic or chronic cases. Dr. Bridge also makes the rather surprising assertion, that there is no value in the popular idea that the chest can be expanded by deep breathing and by the wide movements of the arm. He thinks that these movements practically never increase the pulmonary capacity, but simply act by developing the muscles of the chest. This is not in accord with our own view in the matter, as we are convinced that these exercises, if persisted in, very materially increase pulmonary capacity. There is one factor in these cases which Dr. Bridge emphasizes, and concerning which we agree with him *in toto*, namely, that the patient should be saved from excessive cough by being put in such a position that the cavity can readily drain through a bronchus. In some of these instances, strapping the chest with rubber adhesive plaster in the same way that it is done in pleurisy, will control cough and relieve pain. Dr. Bridge is also a strong advocate of Murphy's method of causing collapse of the lung by the introduction of nitrogen gas into the chest.

The influence of climate on the **Nervous System** in certain cases of disease, is an important subject which was well discussed by Eskridge shortly before his death during the past year. Colorado has come to be such a resort for persons suffering from pulmonary tuberculosis, that it is important for physicians to know the contra-indicating conditions. He pointed out[1] that tuberculous patients suffering from insomnia due to malnutrition, are almost invariably relieved by a residence in Colorado, if the condition of the lungs is such as is likely to be improved by that climate; and provided that they do not take too much exercise, nervous irritability due to the depressing

influence of tuberculosis may be greatly lessened; but on the other hand, persons who have irritable and impressionable nervous systems, and who are inherently nervous from childhood, are not likely to receive any benefit for their nervousness in Colorado. Indeed, they are apt to become worse, and mental depression in tuberculous subjects is more common in Colorado than at the sea level, although melancholia is exceedingly rare in the better favoured cases of tuberculous subjects. Eskridge also thinks that tuberculosis is more likely to attack the central nervous system in Colorado than at sea level in adults, whereas the reverse holds true in regard to children. Functional disorders of the nervous system such as hysteria and neurasthenia, usually do better at the sea level than in Colorado, as do also sufferers from sick headache and migraine, and choreic patients usually do better at sea level than at that altitude. So, too, epileptic patients seem to be unfavourably influenced in Colorado.

REFERENCE.—[1] *Denver Med. Times*, June, 1901.

COCAINE AND MORPHINE.

Reichert concludes[1] from an exhaustive experimental study :—

(1). That the antagonistic actions between cocaine and morphine are of a powerful and widespread character, extending to almost every function involved, and are, therefore, of such a character as to justify the conclusion that one may be regarded as meeting the important indications of a successful antagonist to the other.

(2). That the only important similarities of action are as excito-motors, and their tendencies in some individuals to cause syncope.

(3). That cocaine is not only sufficiently powerful to successfully antagonize the profound depressant actions of morphine upon general metabolism and body temperature, but as a whole is more powerful, both relatively and absolutely, in morphinized than normal dogs.

(4). That the increase in heat production caused by cocaine is due in part to a direct excitation of general metabolic activity, chiefly by motor excitement; and that even in the absence of muscular excitement cocaine may fully counteract the morphine depression.

(5). That the effects caused by a given dose of cocaine per kilo of body-weight vary in intensity within wide limits.

(6). That the changes in body temperature following the injection of cocaine are, with few exceptions, closely related

quantitatively and qualitatively to the changes in general metabolism, and are, therefore, a fairly reliable index of the intensity of the cocaine actions—in other words, of the extent to which the cocaine is counteracting or superseding the depressant actions of morphine.

(7). That the temperature coefficients in normal and morphinized dogs after cocaine are practically identical, showing that morphine does not exert any specific actions on heat dissipation which interfere with the typical temperature-raising actions of the cocaine.

(8). That the typical cocaine effects may be delayed in the morphinized animal, and then appear with marked intensity, as shown by the increase of heat production, body temperature, and by motor excitation at a time when in normal animals they are lessening rapidly. Under such conditions the dangers of morphine poisoning may be superseded by those of cocaine poisoning.

(9). That owing to a co-existent paralytic convulsant state in the morphinized animal, the administration of cocaine or other powerful excito-motor may develop or intensify the convulsant moiety, and thus render a non-lethal dose of morphine lethal, or hasten death when the dose is lethal. In man, the convulsant element is almost without exception so unimportant that there is probably little or no danger of this kind except after unnecessarily large doses of the excito-motor, or in exceptional individuals in which the excito-motor action of morphine is marked.

(10). That the value of cocaine in morphine poisoning probably depends chiefly upon the extent to which it antagonizes the depressant actions of morphine upon general metabolism and body temperature.

(11). That the power of cocaine as a respiratory stimulant depends almost solely upon its actions upon the heat mechanism.

(12). That owing to the tendency of cocaine to cause syncope in certain individuals, to its excito-motor action, to the marked variability in the intensity of the effects caused by a given dose per kilo of body weight, to the occasional delay or latency in the typical actions of cocaine in morphinized animals, and to the fact of the greater value of small to moderate doses in morphinized dogs, it should be administered in morphine poisoning in man in small doses cautiously repeated.

REFERENCE.—[1] *Therap. Gaz.* July 15, 1902.

CUPROL.

This new remedy for the treatment of **Conjunctival Inflammations** is described by Von Sicherer, of Munich, who wishes to direct the notice of his colleagues to a preparation which has given excellent results in numerous cases treated by him during the past ten months. The preparation is invented by Dr. Schwickerath, of Bonn, and is an organic combination of copper and nucleinic acid, containing about 6 per cent copper. The nucleinic acid used in the production of cuprol is obtained from yeast cells. The substance is readily soluble in water, especially hot water ; the solution yields a clear mixture with albuminous liquids ; there is no coagulation, and alkalies cause no precipitation. The best preparation for practical use is the 10 per cent solution, containing as a preservative one-half per cent chloretone, a chemical combination of chloroform and acetone. It is always advisable to prepare the solution with warm water, as chloretone is more readily soluble therein.

A notable advantage in this organic copper combination over the inorganic copper salts—for example, copper sulphate—lies in the facts : (1) That even a 10 per cent. solution produces either no pain at all or very slight pain ; and (2) That it causes very little irritation to the tissue. Comparing it with the best organic copper preparation hitherto available, cuprargol, the latter causes much greater irritation to the tissue, and the objectionable sequelæ are much more pronounced. Immediately after dropping the 10 per cent cuprol solution into the conjunctival sac, no pain is felt ; it is only after about ten to twenty minutes that a slight burning sensation of short duration develops in certain patients. No unpleasant after-effects were at any time observed. Thus far he has used the copper solution principally in acute and chronic catarrh of the conjunctiva, observing almost always a rapid disappearance of the redness, swelling, and secretion. He has used the solution also in conjunctivitis phlyctenulosa. The very little pain following the dropping in of the solution was gratefully appreciated by all the patients, especially by those who had been previously treated with other astringents.

In **Chronic Catarrh of the Conjunctiva,** cuprol was used with great success in several cases in which other therapeutic measures had proved ineffective, although it must be admitted that in the treatment of chronic catarrh alternation of remedies is not without value. But also from this point of view, it is very satisfactory to command in cuprol a new, powerful, and non-irritating

astringent. In obstinate cases the cuprol may be advantageously applied in powder in place of the solution, introducing the powder into the conjunctival sac with a little brush. The pain attending this procedure is so slight that it is never necessary to apply an anæsthetic, although heretofore the latter has been almost invariably required when using copper sulphate as such on the eyes of sensitive persons. It is not surprising that we find cases of catarrhal conjunctivitis which exhibit no material improvement when treated with cuprol ; it is far from the writer's purpose to recommend cuprol as a panacea in all inflammations of the conjunctiva.

In **Conjunctivitis Phlctenulosa** either the solution or the powder may be used. Here, too, the malady is favourably influenced by cuprol. Von Sicherer has obtained no data from his own observation of cuprol in **Trachoma,** hence he cites briefly the results of the experiments made along this line by Simeon Snell, of Sheffield. Snell found that cuprol penetrates deeper into the tissue and irritates less than the ordinary copper salts. He used the preparation in acute and chronic cases of trachoma in powdered form, applying the powder with a brush to the everted lids. Snell lays stress on the slight pain following the use of the remedy, whereas after the application of the copper pencil the patients were obliged to wait a while until the pain had somewhat subsided ; they could leave at once after the application of the cuprol. The customary anæsthetization with cocaine is wholly superfluous when cuprol is used. In several cases Snell used cuprol daily ; in other cases three times a week, or even less frequently. In the intervals the patients were instructed to drop in the 5 per cent cuprol solution.

As will be seen from these tests, cuprol possesses two notable advantages : the slight painfulness, and the slight irritation of the tissues, which render it superior to the other astringents, especially the inorganic copper combinations, and which warrant its recommendation to a wider circle of practitioners.

DIGITALIS.

We are accustomed to consider that digitalis may, when given in too large quantities, produce disagreeable effects, which are often called cumulative. These effects are usually associated in our minds with disorders of the circulatory system ; but recently Hall has recorded[1] a number of cases in which the administration of digitalis caused hallucinations or delirium, and he quotes

French authorities as having reported such cases so long ago as 1874.

REFERENCE.—[1]*Therap. Gaz.* Oct., 1902.

DIONIN.

This bitter substance, known as the hydrochlorate of ethylmorphine, introduced as a sedative and analgesic, has been previously noticed. It is not equal to morphine, but capable of controlling cough and pain in suitable cases. The dose is about a quarter of a grain. Langes confirms the value of the drug as a **Sedative** in **Phthisis, Asthma,** and **Empyema,** since it checks the cough and diminishes secretion. He uses 8 drops, of a 5 per cent solution, in **Bronchitis,** three times a day.

DORMIOL.

Dormiol, which has now been before the profession for a number of years, retains its position as a **Hypnotic,** the technical name being dimethyl-carbinol-chloral. It will be remembered that it is a clear liquid of a rather strong odour, miscible in alcohol, ether, and chloroform, and soluble in equal parts of water. Its chief therapeutic function lies in overcoming insomnia in cases of **Neurasthenia** and **Delirium,** in the dose of from 10 to 15 grains.

DYMAL.

This body, the salicylate of didyme, is one of the latest **Antiseptics,** occurring in the form of a light, very fine inodorous powder, which can be used when mixed with lanolin in the proportion of 1 to 10, as an excellent ointment for the treatment of **Burns** of the second and third degree. It lessens the pain, decreases the secretion, and produces healthy granulations. It also makes a good **Dusting Powder** after minor surgical operations, and for acute **Vesicular Eczema.**

ETHER.

During the past year an important investigation has been carried out by Da Costa and Kalteyer to determine the **Blood changes** produced by administering ether as an anæsthetic. These researches are of importance for manifest reasons, and also because there has heretofore been some conflict of opinion about this matter. They also bear upon the important question as to whether operation is to be performed in cases of grave anæmia, and particularly upon the work of Mikulicz, who has stated that 30 per cent is the lowest level of hæmoglobin at which an operation is to be considered. Da Costa and Kalteyer both believe that we must not give a general anæsthetic, except under stress

of absolute necessity, if the hæmoglobin is below 40 per cent, and that in these patients local anæsthesia should be employed whenever it is possible. If a general anæsthetic is to be given, its administration should be trusted to an experienced man, as little as possible should be given, and oxygen should be combined with it. It is also necessary that the operation should be performed rapidly, that proper measures should be taken to bring reaction after its completion, and that oxygen should be inhaled after the operation to aid in throwing off the anæsthetic. Da Costa and Kalteyer are further of the opinion that the number of red corpuscles is influenced by many factors associated with and accompanying the anæsthetic state. The character of this change is, as a rule, a polycythemia ; rarely, an oligocythemia. These factors associated with and accompanying the anæsthetic state may be grouped into three classes. In each class, when analyzed separately, is found a cause capable of producing an increase in the number of coloured corpuscles.

The nature of this polycythemia seems best explained by a lessening of the watery elements of the plasma, thereby reducing the total volume of the liquor sanguinis, and consequently causing concentration of the blood. It seems reasonable to infer that the polycythemia is not influenced by excessive proliferative changes, which probably occur in the hæmatopoietic tissues. The increased blood production is an effort to rapidly restore destroyed cells.

The three important factors incident to the polycythemia are : (*a*) The period of preparatory operative treatment ; (*b*) The anæsthetic state ; and (*c*) The post-operative stage.

The blood inspissation is, as a rule, most pronounced immediately after the termination of the anæsthetic stage. In some instances the anhydremia may be increased by each succeeding factor, or one of these factors may exceed the other. For example, the preparatory measures may bring about such a high grade of concentration, that during the anæsthesia the polycythemia may be stationary, or in a few hours may lessen somewhat. This variation existing between the plasma and the corpuscles, although temporary (for the economy adjusts the balance of the output, and the intake of the watery principles of the blood, with wonderful rapidity), should be regarded as too pronounced to be within the physiological limits. The relative increase in the number of erythrocytes is generally still present some time after the operation. But not infrequently the adjust-

ment of the watery and solid elements manifests itself before this time, and an oligocythemia may be present.

The hæmoglobin is always reduced absolutely; in some instances there is an apparent increase, but this rise in the percentage of hæmoglobin is never parallel with the rise in the number of red blood-cells. The individual corpuscular hæmoglobin value is therefore reduced. This reduction in the colour value of the chromocytes is most striking when the colour index, ascertained some time before the operation, is compared with the blood decimal, determined some time after the operation. We must conclude that etherizing produces increased hæmolysis, and in nature's effort to rapidly replace the destroyed corpuscles the regenerated cells are imperfectly supplied with hæmoglobin.

The duration of the anæsthetic state, and the amount of ether, may influence the blood changes; but the extent of the disturbances could not be determined on account of the many modifying factors.

The amount of blood loss, as encountered in this series of cases, does not seem to affect the blood.

Whenever possible, one or more blood examinations should be made before giving a general anæsthetic, and the examinations should be made before preparatory treatment has been instituted. On account of the hæmolysis, which is shown by the fall in corpuscular hæmoglobin after operation, a very low percentage of hæmoglobin must be regarded as a contra-indication to the administration of a general anæsthetic. The amount which should be regarded as a positive contra-indication is uncertain. The authors think, with Hamilton Fish, that below 50 per cent is a dangerous level. In malignant disease, and in cases where surgery might prolong life briefly, but cannot cure, operation should not be performed under a general anæsthetic if hæmoglobin is below 50 per cent. They have operated in two cases in which the hæmoglobin was 40 per cent; in each instance a vital emergency existed, and in each case death upon the table was narrowly averted.

Closely allied to this matter is the important question as to effects produced by the administration of excessive quantities of ether. We doubt if we exaggerate matters, in expressing a belief that twice as much ether is often given as is absolutely necessary to produce the surgical anæsthesia required. The great majority of resident physicians in hospitals are urged by operators to hurry their patients under the influence of the

anæsthetic, and give it profusely in the early stages of anæsthetisation so as to rapidly narcotize the patient, producing active struggles because of his sense of suffocation, and they then push the anæsthetic harder than even before in order to overcome these struggles, with the result that the patient is overwhelmed by the drug, and not infrequently is further saturated by its continued employment in excessive quantities. We use the word "saturated" advisedly. It is quite extraordinary to notice the difference between the breath of a patient, after operation, who has received moderate quantities of ether, and the breath of another patient several days after operation, who has been saturated by its too generous employment.

There are three features, aside from actual renal disease, which are probably responsible for the development of **Anuria** or deficient secretion of urine after the employment of ether :—

(1). The degree of saturation of which we have spoken, which undoubtedly does much towards interfering with renal activity ; not necessarily irritating or inflaming the secretory epithelium of the kidney, but so depressing the circulatory system that the flow of blood through this organ is interfered with. For it must be remembered that no gland can be active without a proper supply of blood, and that cardiac depression often results in renal congestion and stasis, with functional disorder of the kidney, without there being present any actual renal lesion.

(2). The too frequent exposure of the patient's body to cold, either in the way of wet dressings, or in the air of the operating room. This feature in producing evil results is being more and more rapidly eliminated each year. Surgeons are recognizing the necessity of maintaining their patient's temperature, and are using superheated operating rooms and applying hot bottles. Nevertheless, in all private practice, and even in hospital practice, unnecessary exposure is permitted, and chilling the surface also produces renal congestion and imperfect kidney activity.

(3). Operations performed on any portion of the genito-urinary tract, under which circumstances, apparently by some reflex influence, the kidney becomes more or less disturbed in its functions.

These conditions can therefore be largely avoided by the taking of proper precautions, but if they arise nevertheless, it is necessary that active treatment should be instituted.

There are three measures which we believe to be particularly useful in these cases.

(1). The administration of circulatory stimulants if there are any evidences of depression of the heart and vessels; and by these we refer especially to strychnine and moderate doses of digitalis.

(2). The introduction into the bowel of copious injections of normal salt solution.

(5). The employment of nitroglycerin, hypodermically or by the mouth, if we have reason to believe, because of the presence of sclerotic changes in the blood-vessels, that there is a tendency to spasm of the renal arteries.

Not infrequently, under the influence of **Nitroglycerin** upon these vessels, a free secretion of urine takes place.

ETHYL CHLORIDE.

Ethyl chloride, while long employed by the profession for the production of local anæsthesia, through the benumbing of the sensory nerves by cold, has more recently been largely employed with the object of producing anæsthesia by the **Inhalation** of its vapour. It must be given in concentrated form, and causes an anæsthesia which is suitable for minor operations. A useful method of administering it is by using an ordinary funnel, the spray of ethyl chloride being injected into the small end, while the large part is placed over the mouth and nose, the hand or handkerchief being placed on either side of the funnel to confine the vapour about the nose and mouth. The drug does not lend itself to operations in which it is necessary to produce muscular relaxation. On the contrary, it frequently causes some muscular rigidity, but its use is usually not followed by disagreeable after-effects.

EUCALYPTUS.

Faulds[1] details his investigations as to the value of eucalyptus in **Diabetes Mellitus.** What seems very interesting is the fact that, when the patient gets a fresh warm infusion, the sugar at once drops in quantity, and in some cases from 60 grains to half a grain per ounce. It is evident, then, that there is not any one of the substances contained in this infusion that arrests the excretion of sugar, but evidently a combination of them have this effect, *i.e.*, there seems no alkaloid in it which, when given alone, has the power of influencing the amount of glucose in diabetic urine. Then how and why does the fresh infusion act so

promptly ? The writer thinks that, just as a newly infused cup of tea is an enjoyable beverage, not on account of the action of its alkaloid theine alone, but because it contains, in addition, a mixture of a volatile oil and tannin, so does tea from eucalyptus (which we know has antiseptic properties) act in checking tissue metamorphosis, which is so active in this disease.

The causation of glycosuria is still wrapped in mystery, but it is probably produced by a variety of causes, such as gout, cold, nervous exhaustion, and over indulgence in food and drink. In fact, any condition which tends to limit or prevent the appropriation of sugar in the blood, must lead to an excess of sugar in the blood, and thus to glycosuria. In these cases it seems that in the earlier stage the eucalyptus treatment will prove beneficial ; but where the disease has been inherited, or where the patient's antecedents or immediate relatives are neurotic (in which case the probable cause is a progressive degeneration of the vaso-motor centres of system which will disturb the equilibrium of the blood-supply to the hepatic cells), this treatment, like others, will be of no avail. And such has been the author's experience ; for in 41 cases treated with eucalyptus, 11 came from talented families, or were neurotics ; 7 were hard brain-workers, and 4 inherited the actual disease. In these last 22 the eucalyptus treatment had no effect. Add to these, 4 cases in which the disease had gone to the stage of approaching coma before the treatment had been commenced, and we get the total number of unsuccessful cases. The remaining 15 showed a total disappearance of the disease and, so far as can be judged, are completely cured.

REFERENCE.—[1]*Glasgow Med. Jour.* May, 1902.

EUQUININE.

Under the name of Euquinine, the profession has had before it for two or three years a substitute for quinine itself. It is a noteworthy fact that it has not by any means supplanted the alkaloid of cinchona. But a considerable number of physicians claim to have observed excellent results when employing it as an **Antiperiodic,** without producing the cephalic symptoms caused by quinine. It is rapidly eliminated, and is ordinarily given in the dose of 16 to 24 grains as an antiperiodic. As it is tasteless, it can be easily administered, particularly to children, who usually object to quinine because of its bitterness.

GELATIN (As a Styptic).

H. C. Wood,[1] jr., concludes as follows :—

(1). Pepsin digestion of gelatin doses, does not destroy its coagulating effect on the blood.

(2). The resulting product is dialyzable, and quite capable of absorption.

(3). The administration of gelatin by the mouth in the treatment of hæmorrhage is, therefore, a useful procedure.

(4). Gelatose seems to antagonize, if given in sufficient quantity, the anti-coagulating action of peptone.

Reference.—[1]*Amer. Med.* May, 1902.

HEROIN.

We have now come to a point at which we can reach pretty positive conclusions as to the true therapeutic value of heroin, a derivative of opium with which our readers are already familiar. As a matter of fact, it is probably not as valuable a remedy for the purpose of controlling cough as is codeine, and full doses of it undoubtedly cause some nausea and depression. On the other hand, it does not tend to check secretion, and will probably remain in the therapeutic armamentarium as a remedy to be thought of for the purpose of controlling excessive **Cough,** and classed amongst the drugs of second or third degree in efficiency. Gillies, of Montreal, considers, however, that it is superior to morphine or codeine for the relief of cough, and that it has a distinct value in relieving restlessness, although as a pain-reliever it is inferior to the alkaloids just named. On the other hand Artaud claims that it acts as does morphine in relieving pain, particularly if it is administered hypodermically. We do not think that it is a pain-reliever of value if given in ordinary doses.

HETOL.

This drug, introduced as a remedy for **Pulmonary Tuberculosis,** was referred to at some length in last year's *Annual.* Franck[1] thinks that it possesses distinct valuable properties, but that it is not to be used unless it can be combined with proper sanatorium treatment.

Reference.—[1]*Therap. Monats.* Dec. 1901.

HYOSCINE.

Hyoscine has been largely used in the treatment of **Chorea,** When employed it is necessary, in addition to arsenic, to give

full doses of the drug, and some children have received as much as $\frac{1}{50}$ of a grain although $\frac{1}{200}$ of a grain will, in many instances be quite sufficient.

INTRA-TRACHEAL INJECTIONS IN BRONCHITIS.

Anderson[1] says that after more than two years' experience with this method, he has found intratracheal injections very efficacious in a very large majority of cases of **Bronchitis,** and believes that a sufficiently large number of cases have been treated to warrant definite conclusions. Before outlining the classes of cases in which this method has been found of especial value, it may be well to give briefly the method that has been used by the author. The solution is injected between the vocal cords by means of a suitably-curved cannula attached to a syringe. The injection is made while the patient takes a gradual inspiration. The cannula is guided by the laryngoscope, as in making the laryngeal application. It is essential that the solutions be non-irritating. Pure olive oil is used as a vehicle. One is limited to the use of those drugs that are not too irritating and are soluble in the oil; as experience increases new combinations are found that are of service for this method.

The formula used more than any other is **Guaiacol** 2 per cent, and **Camphor-Menthol** 5 per cent, in olive oil. The solution should be filtered through cotton to remove any sediment, and if properly made, it should be clear, and of the same colour as the pure oil. When cold it will be a little cloudy. The solution should be sterilized by placing it in a hot-water bath for about forty minutes.

Ichthyol, Creosote, and **Iodoform** have been used in 2 per cent solutions, either alone or with camphor-menthol.

The injections are usually made daily at first, and, as the patient improves, every other day. One to two drachms is injected at each sitting, though at first it is advisable not to employ more than 1 drachm. The solution should be warmed to body temperature before it is injected. If the throat is irritable, a 4 per cent solution of cocaine may be sprayed into the throat before giving the injection. It is very seldom necessary to use cocaine after one has become skilful in this method of treatment. It is surprising how little irritation or coughing is caused by the injection. Only rarely is severe coughing produced, and when it does occur it is often due to the unskilful introduction of the fluid.

The writer has found this method valuable in most cases of bronchitis. In the congestive stage of acute bronchitis it has not proved so regularly useful as in the later stages. It is apt to cause coughing, which usually continues only a few minutes, when used during the congestive stage, but the soothing effect and sense of relief which soon follows is very grateful to the patient. As the congestive condition passes off we find great benefit in its daily use by lessening the cough and expectoration. Many patients are entirely relieved by a few injections.

Reference.—[1]*Phys. and Surg.* Feb. 1902.

IODOLINE.

Under the name of Iodoline, a yellow powder insoluble in water and alcohol, and formed by a mixture of iodol with albumin, has been introduced as a substitute for the iodides or iodoform. It occurs in two forms, one for **Internal** use, containing 9 to 10 per cent of iodol, and another for **External** use, containing 30 per cent of iodol. It is claimed by Jordan[1] that it is valuable in **Tertiary Syphilis** in doses of 30 grains in water or milk, six to ten doses being given daily; that it rarely disorders the stomach, and that iodine speedily appears in the urine when it is taken. When used externally no iodine appears in the urine. It may, in Jordan's opinion, be employed as a useful substitute for iodoform.

Reference.—[1]*Monats. f. Prakt. Derm.* Bd. 3, 1901.

IPECACUANHA.

The value of this drug in the treatment of **Dysentery** has been emphasized once more during the past year by Colonel A. A. Woodhull,[1] late Assistant Surgeon General in the United States Army. This writer is firmly convinced of the very great value of ipecacuanha when it is administered in a proper way to persons who are suffering from this disease. He has nothing new to recommend in regard to its administration, but emphasizes its great value. The stomach must be empty and the patient recumbent. About twenty minutes before giving the ipecacuanha it would be well to paint the epigastrium (not the whole abdomen) with tincture of iodine, or to apply a mild sinapism sufficiently to induce gentle counter-irritation. This precaution, however, may sometimes be omitted, or may be deferred until the medicine has been taken. 10 or 15 minims of laudanum may be given, always on an empty stomach, to be followed in ten or twelve minutes by from 15 to 30 or more grains of ipecacuanha in pill

form, or as a paste, with a very small quantity of water. No food nor fluid should be taken for at least four hours, and recumbent rest should be strictly maintained. If the ipecacuanha is administered in pill or capsule, the laudanum may be mixed with it instead of given previously. 1 scruple of ipecacuanha and 1 grain of opium can be made into four pills, or the laudanum can be put in the pills. When pills are used they should be freshly made; or 20 grains of ipecacuanha can be suspended in 2 fluid drachms of water, with a few drops of an aromatic to disguise the taste. It is never well, on account of the popular idea associated with it, to disclose the name of the medicine, and the patient should be warned to resist any inclination to vomit.

The size of the dose should be in proportion to the gravity of the case. Just as in severe colic very large doses of opium are tolerated, and in pernicious fever enormous quantities of quinine are indicated, so in dysentery the magnitude of the dose should bear some relation to the severity of the disease. With a little experience that relation will soon be determined; 60 grains is not a maximum dose for an adult, but with ordinary acute dysentery from 15 to 25 grains at a time should suffice. If the first or any subsequent dose is rejected, which rarely happens if the rules are carefully followed, it is to be repeated after a short interval. The retching or vomiting of exhaustion or the restlessness of delirium is no bar, but rather an inducement to this treatment, and small children or delicate women can take it with impunity in proportionate amounts.

The common course in acute dysentery is, first, the relief of pain, next the subsidence of fever, and then the cessation of the bloody discharges. The usual sign that recovery is at hand is a painless, copious, semi-fluid evacuation, much the colour of the ipecacuanha powder, not black, as has been stated. The medicine then may be reduced or entirely suspended. In acute cases these results will follow very quickly. In chronic dysentery complete recovery may be delayed, or, indeed, may fail of absolute attainment, but great amelioration may be confidently anticipated. That the powder should be pure and comparatively fresh is always essential.

REFERENCE.—[1] *Therap. Gaz.* April, 1902.

LYSOL.

Sufficient experience has now accumulated in regard to the exact therapeutic value of lysol for us to determine its proper

place in therapeutics. As with most drugs which possess true antiseptic properties, it is capable of causing poisoning when it enters the system in excessive amount. It will be remembered that lysol is a fluid which depends for its caustic action upon creosol, a nearly related substance to carbolic acid, and that some investigators have thought it possessed an antiseptic action more valuable than that of phenol. On the other hand, its internal use has not usually been followed by satisfactory results. That it has come to be one of the fluid disinfectants in surgical procedures is, however, well recognized.

Curiously enough, notwithstanding its strong odour and characteristic appearance, a very considerable number of patients have been poisoned by taking it internally by mistake. Out of 18 cases, recorded by Burgl, who suffered from poisonous symptoms arising from its use, 13 were poisoned by its internal administration, and 6 of these died ; the remaining 5 cases were poisoned by its absorption, in one instance, after it had been used as a uterine wash. Three of these patients died. Burgl also reports the case of a baby, five days old, that received from the nurse a coffeespoonful of lysol in mistake for syrup of rhubarb. Death occurred in fourteen hours, and the autopsy revealed extensive burns of the mouth, tongue, and pharynx, and of the œsophagus and stomach ; even the duodenum was congested. In the other case, a girl of eight years and four months, while suffering from a slight sore throat, received by mistake a drachm of lysol. Notwithstanding the administration of tartar emetic, she did not vomit. A stomach tube was introduced and this provoked vomiting. The child died very shortly afterwards comatose and cyanotic.

MENTHOLIZATION IN ETHER ANÆSTHESIA.

Briggs[1] commends this plan of treatment. He says that the remarkable **Anæsthetic** effect of menthol and oil of peppermint on the mucosa of the air-passages led him several months ago to suggest their use preliminary to etherization. Not until February 21, 1902, however, did he put the suggestion to practical test. On that date, preliminary to etherization in an extremely nervous patient with an annoying bronchial cough, he used menthol with really magical effect. A day or two later, at his request, Dr. Dufficy, at the Mater Misericordiæ Hospital, employed oil of peppermint in two cases for the same purpose, and with like result. Since that time he has used it in a number

of surgical cases, and Dr. Dufficy has employed it in all the etherizations at the Mater Misericordiæ Hospital with such result as he will report.

Oil of peppermint and menthol (pure and in saturated alcoholic solution) seem to be equally effective, but on the score of economy and convenience **Oil of Peppermint** is preferable. The method is simple : Before etherization is begun, sprinkle about a drachm of the oil or of the 50 per cent alcoholic solution of menthol in the cone with ether, being careful not to let it drip ; bring the cone down over the face slowly, and after four or five inspirations crowd it down well and push the etherization as rapidly as is consistent with safety—how rapidly, of course, depends somewhat on the individual patient, and must be determined by the anæsthetist.

The advantages of this as compared with the usual method are :—

(1,) Anæsthesia may be more easily and quickly induced and more easily and smoothly maintained.

(2,) Entire freedom from coughing and suffocation, and comparative freedom from nausea, vomiting, and retching.

(3,) Suppression or marked abbreviation of the period of excitement.

(4,) Profound first anæsthesia, which permits minor operations with greater certainty than does the usual method.

(5,) The author's observation inclines him to believe that there is less post-operative nausea and vomiting.

Reference.—[1]*Occ. Med. Times*, April, 1902.

MERCURY.

Any investigations which look towards throwing light upon the real influence of mercury in **Syphilis** are of value and great interest. Recently Justus has endeavoured to study the influence of this drug, and has excised papules and portions of condylomata from patients who were syphilitic, and who were in various stages of mercurial treatment. These excised pieces were then examined microscopically, with the object of determining what the exact effect of mercury was upon their cells. He thinks from his studies that mercury is carried to the syphilitic lesions by the blood stream, and he reaches this conclusion because of the presence of mercury sulphide in the walls of the capillaries and smaller arteries. He thinks that the mercury is stored up in the cells as an albuminate, and that the mercury also combines

with the hæmoglobin, destroying the corpuscles which contain the hæmoglobin ; these corpuscles being those which have poor vitality owing to the influence of the syphilitic virus. It will be remembered that Justus has made a very considerable number of experiments with the object of devising a therapeutic test in syphilis. He claimed from his investigations that in syphilitic individuals the administration of mercury produced a temporary, but very distinct, decrease in the quantity of hæmoglobin in the blood. Unfortunately, other investigators have not been able to coincide with Justus as to the value of this test. From their experiments it appeared that a marked diminution in the hæmoglobin does not always take place in syphilis when mercury is administered, and, furthermore, that such a diminution does take place in a few non-syphilitic individuals when mercury is employed.

METHYLENE BLUE.

An interesting therapeutic observation made in America by Hughes and Lovelace, and by other clinicians abroad, is that methylene blue is capable of acting as a very distinct **Nervous Sedative.** Whether it really possesses greater sedative influences than other members of the aniline group of drugs, remains to be determined. But in their experience, it can be relied upon to act as a nervous sedative in cases of **Insanity,** producing its effect three or four hours after a dose is given, and maintaining it for fifteen or twenty hours. It never produced depression.

PERMANGANATE OF POTASH IN DYSENTERY.

MacDonald[1] reports that during the autumn of 1899 and the spring of 1900 dysentery appeared in the Dorset County Asylum, and while the cases were not numerous, yet they were sufficient in number to cause inconvenience and anxiety. Starting on the female side, the cases were of the usual well-known type and character, and the number of severe attacks were in about the same proportion. After a time, and when there were no cases in the women's wards, cases began to appear on the male side, and these, if fewer in number, were more severe than among the women. At this time the ordinary therapeutic remedies were employed, and in a few cases injections of a solution of nitrate of silver were tried, but the results were most discouraging. As far as practicable the cases were isolated, and the complaint disappeared, only to reappear again in the winter of 1900. It was during this second outbreak that the use of

injections of permanganate of potash was resorted to. As soon as the case was diagnosed to be one of dysentery, the lower bowel was washed out night and morning with a weak solution (from 2 to 4 grains to the pint) of permanganate, the instrument used being an ordinary enema syringe. The motions rapidly lessened, and seldom had the treatment to be prolonged beyond the third day. In every one of the cases—and several of them were severe—the patients recovered. Not only was the treatment successful, but by the early and judicious use of the injections the outbreak was cut short.

At the time doubts were entertained as to the value of the treatment, but after a further experience these doubts were removed, and now every case of a dysenteric nature or of **Severe Diarrhœa** is treated by this method. In each instance recovery has followed the treatment. Apparently the permanganate acts in its double capacity of a **Disinfectant** and a **Styptic.** In the more severe cases, milk as an article of diet was found to be unsatisfactory. It was not only rejected, but it increased the intestinal irritation." This is not an uncommon experience. The main article of diet used was a mixture of special beef tea and specially-prepared rice, together with a liberal allowance of port wine. To insure success the treatment should be commenced early, and thoroughness is an essential precaution.

REFERENCE.—[1]*Lancet*, March, 1902.

PHOSPHORUS.

This drug had at one time a greater popularity with the medical profession than it has to-day. While fashions exist in regard to remedies, in this particular instance a potent factor in diminishing its clinical employment was, in all probability, the belief that it is a substance which is apt to be oxidized when it is brought in contact with organic materials, and that when oxidized it fails to produce effects which are identical with those of the drug in its original form. So far as we know, no evidence has ever been produced to determine this important fact, and a contribution recently made to the subject in the *British Medical Journal* by Mr. Martindale, at the instigation of Sir William Gowers, seems to us, therefore, to be worthy of notice.

Recognizing the prevalent opinion that the oxidizing process spoken of might occur, Martindale prepared phosphorus pills with the alkaloids strychnine and morphine, and with quinine sulphate, nitro-glycerin, and zinc valerianate. The pills were

made according to the method advised in the British Pharmacopœia, and also with cocoa butter and prepared suet, and large doses of phosphorus were placed in the pills. After the pills were made, they were allowed to stand, properly protected, for a number of weeks, and analysis subsequently showed in the case of strychnine pills that neither the phosphorus nor the strychnine had been materially changed, although it was thought that the phosphorus would partly destroy the alkaloid. When the morphine and phosphorus pills were examined, varying results were obtained, which Martindale thinks were due to difficulties in the technique rather than to any decomposition. When quinine sulphate was employed, this alkaloid did not suffer in any way from contact with the phosphorus ; the pills of nitro-glycerin contained $\frac{1}{50}$ grain of phosphorus and $\frac{1}{50}$ grain of nitro-glycerin, and no evidence of decomposition was found when cocoa butter was employed as a base.

In the case of the combination of phosphorus with zinc valerianate, a small quantity of zinc phosphate was formed; which, however, Martindale believes was made during the process of extraction, and not in the pill.

In all instances, a number of weeks after the pills had been made, they were found to be luminous in the dark, which indicates in general that no great amount of oxidation of the phosphorus had set in; and Martindale concludes that no decomposition worthy of note takes place in either the organic matter or the phosphorus when they are mixed in pill mass.

PHOTO-THERAPY.

Photo-therapy is a remedial measure which has undoubtedly proved of very great value, only limited in its application by the fact that many practitioners have not the necessary apparatus for employing it. The gradual supersession of sun-light by the arc-light by Finsen himself, and more recent improvements in lamps and other apparatus by Lortet and Gounod, of Lyons, and others, were described in last year's *Annual* (p. 582).

While there is no denying that the light treatment takes a long time to produce its results, on the other hand it cannot be doubted that the percentage of cures produced by it is, considering the conditions in which it is employed, very large. Thus, out of 456 cases of **Lupus** treated by Finsen, 130 have not recurred during periods of from one to five years, the rest of them having been under observation less time than that. Even

if recurrence does take place, the treatment can be renewed; and, as is well said in an editorial in the *Quarterly Medical Journal* for February, 1902, "When we consider the pain and disfigurement and disappointment which previous methods of treating lupus have caused, it must be acknowledged that even if Finsen's discovery has not done all, yet in the treatment of lupus it has marked a great advance."

PURGATIN.

Under this name a new **Purgative** has been introduced. Although a synthetic, it is closely allied to aloin and other active principles or ordinary purgative drugs. Our attention has been called to this matter particularly by a contribution made by Dr. Marshall, of the University of St. Andrews. As a result of quite an exhaustive study of the subject, he concludes that while a slowly-acting drug, it is, under ordinary circumstances, a sure purgative, producing no serious after-effects, and that while it occasionally causes colic, this is of a mild character. Large doses undoubtedly give rise to renal irritation, and therefore the drug should not be given when kidney trouble exists. Marshall thinks that the main indication for its use is where a laxative is required, but he adds a clause which, after all, gives us the kernel of the whole matter, namely, that he is very doubtful if purgation will be found better than the ordinary crude laxative drugs in cases of habitual constipation. The drug is capable of colouring the urine, and unless the patient is told of this fact, its administration may cause alarm.

Somewhat allied to this substance from its therapeutic use is **Phenol-phthalein,** which has recently been given as a purgative in the dose of 1½ to 2½ grains. It is said to be equal to magnesium or sodium sulphate, but to be very mild in its action, so mild that even as large a dose as 30 grains may be given, although a smaller quantity will often produce a continuous watery stool in from two to five hours. Phenol-phthalein passes through the bowel for the most part unchanged.

QUININE.

Quinine Injections.—The question as to whether it is wise to employ quinine hypodermically has been discussed again and again during the last few years. It has always seemed to us that the hypodermic injection of quinine was to be governed by the rules controlling us in regard to the hypodermic injection of mercury in syphilis, namely, that where the infection was so

grave that life is threatened, it might be used by means of a hypodermic needle, but that otherwise the irritation produced by its use contra-indicated its employment in this manner. Within the last few months attention has once more been called to this subject by reports from physicians who have been treating malarial infection in Africa, and who followed Benson's advice to give quinine hypodermically. Although Benson claimed that he employed this method in nearly 1400 cases with advantageous results, his followers seem to be disappointed because local inflammations so invariably followed the injection. Not only have these inflammations been annoying and painful, but in a number of instances have caused such deep sloughs as to be almost dangerous, while they are so slow to heal that recovery is protracted, and permanent disfigurement is often met with. We think that clinical experience endorses these latter observations, and experimental investigation certainly confirms them.

More recently Maxwell has advised that the injections should be intra-muscular instead of subcutaneous, and that the solution of the drug be sent into the gluteal muscles, the scapula, or deltoid muscles. The amount used should consist of 6 grains of the hydrochlorate of quinine dissolved in 40 minims of boiled water. The injection, which is painful, should be followed by painting the point of injection and the surrounding area with iodine. While Maxwell asserts that this method of treatment has not been followed by disagreeable results in his hands, he admits that in the presence of any septic or ulcerated process such injections would be dangerous, and his investigations seem to simply emphasize the fact that quinine injections ought rarely to be resorted to except under extraordinary circumstances.

Quinine in the Treatment of Wounds.—Marx[1] contributes a paper on this subject. He reminds us that the antiseptic power of quinine has been known for years. Long before bacteriology entered the domain of medicine the researches of Binz (1867) made us familiar with it. Since then it has been forgotten. The text-books of surgery hardly mention quinine among the antiseptics. The author attempted to make a personal investigation of this subject, and studied the effect of hydrochlorate of quinine upon bacteria in solutions of various strength. He selected for his experiments cultures of bacillus pyocyaneus, staphylococcus aureus, bacillus anthracis, and mesentericus vulgaris. The result was that the drug as an antiseptic proved to be superior to carbolic acid and to formalin,

and occupied a place between formalin and sublimate. Microscopically he could state that not only does quinine arrest all movements of bacteria, a fact already observed by Binz, but also the agglutination phenomena he observed with 0·3 to 0·6 per cent solution of quinine. He recommends quinine as an antiseptic and styptic. The last property can be demonstrated by adding 1 drop of quinine solution to a drop of fresh human blood. One can see at once an agglutination of the erythrocytes. A solution of 0·08 per cent is sufficient to bring out the agglutination phenomenon. It can be also demonstrated microscopically. For practical purposes it is very important to know that quinine applied locally is able to **Arrest Bleeding.** The formula the writer uses is as follows :—

℞ Quinine hydrochlorate	5·0	Aquæ, q. s. ad.	150·0
Spiritus rectificatus	15·0		

A tampon saturated with this solution is applied to wounded surfaces, also in cavities. A half minute is sufficient to arrest bleeding.

If, in addition to this property of quinine, we take into consideration its antiseptic power, we can readily see the value of the drug. It is well known that we can never obtain an absolute disinfection of our hands. Here we have a remedy which on one side will render innocuous the germs carried to the wounds with our hands, and on the other will help to heal. In case of ulcerated surfaces already infected, we can nevertheless try the application of quinine. At all events, untoward symptoms have not yet been observed by the author from the use of quinine. He also devised a 1 per cent quinine gauze similar to iodoform gauze : its formula is : Quinine, 5 grms. ; alcohol, 15 grms. ; water, 170 grms. ; and gauze, 500 grms. Its effect is the same as that of iodoform gauze, without of course the odour of the latter.

The effect of subcutaneous or intravenous injection of quinine in general **Septic Disease, Phlegmons,** and **Erysipelas,** the author proposes to discuss in a future article.

A word is needed in conclusion. A wet quinine tampon is apt to give an odour ; it is therefore advisable not to leave a tampon longer than twenty-four hours. Pharmacologically the effect of quinine is based upon its ability to coagulate albuminoids in the weakest solutions. So in using the wet tampons we find on the surface of the wounds a fine layer of sterile greyish secreta, under which healthy granulations develop.

It can be readily seen that a prolonged application of wet tampons of 1 per cent solution of quinine is apt to form a coagulation necrosis. Of course, weaker solutions will give it in a less pronounced form.

REFERENCE.—[1]*Münch. Med. Woch.* April 22, 1902.

SALOL.

Many months ago a number of papers appeared claiming that salol was valuable in **Small-pox.** Recently Thomson and Love[1] state that salol is said to have proved of great service in the hands of some observers, and Dr. Charles Begg, of Bath, is especially impressed with the efficacy of the drug in all cases of small-pox. In a letter written in May, 1901, to Dr. A. K. Chambers, he says: "Personally I never saw any more striking results from any drug in any case than the action of salol in small-pox in China, and it is difficult to believe that climate or type can make such a difference as to render the drug useless, especially as it has succeeded in England. I am quite satisfied that the process of maturation and its secondary fever has nothing whatever to do with small-pox, and it seems but reasonable to believe that the process can be arrested just as in any other suppuration."

Unfortunately, the result of the salol treatment as carried out by Thomson and Love at Belvedere is that the drug is absolutely useless, and the convictions of Dr. Begg have not been confirmed. Taking the first series of 7 unvaccinated cases, they found that of these 3 died, giving approximately the usual case mortality seen in Belvedere among unvaccinated persons. On examining the list of 69 vaccinated cases, they found that among these there were 10 deaths, giving a case mortality of 14·4 per cent, or about 50 per cent higher than that seen over all vaccinated persons admitted to the small-pox hospital in Glasgow during the recent outbreak. This higher death-rate is of course due to the fact that only the more severe types of cases were treated with salol.

Not only was the case mortality uninfluenced by the treatment, but the severity of the attack likewise seemed to be unaffected, for out of the 69 vaccinated cases treated, 20 were confluent, giving a percentage of 28·9, or about 48 per cent. higher than was found among vaccinated cases of all grades of severity during the recent epidemic. Of course, the severity of the attack is apparently determined by the susceptibility of the patient, which we could not expect would be modified by any drug.

Yet the abundance of the eruption seemed in no way modified, even in those cases where the drug was administered from the earliest possible date at which the disease could be recognized with certainty. Further, the course followed by the eruption, as well as the complications and sequelæ, were precisely those with which we are familiar among small-pox patients who are subjected to no kind of special treatment. The stage of maturation was passed through in almost every case, and in some the eruption became virulently septic. Boils, abscesses, and other limited suppurative complications occurred in the usual proportion of cases, and in point of fact pus formation was in no way hindered or apparently limited.

Even supposing that salol has a power of preventing the pus formation resulting from the presence of pyogenic organisms, it does not follow that the drug will prevent the development of the stage of maturation, for if there is one fact in the pathology of the small-pox pustule more certain than another, it is that the so-called pustule is no pustule in the stricter sense of the term, and that in the majority of cases pyogenic micro-organisms, both in cultures and in properly prepared sections, are conspicuous by their absence. In many cases of severe secondary fever the so-called pustules contain practically nothing but lymphocytes, and show a complete absence of the polymorphonuclear corpuscles usually produced by pyogenic organisms.

It is difficult to believe that racial or climatic difference would modify the action of salol in small-pox, though of course this is just possible ; but the satisfactory action of salol in China may be reconciled with its unsatisfactory action in the cases observed in Belvedere hospital, if we remember that there is in the East a disease which has been and is now being confused with true small-pox, on account of its superficial resemblance to that disease.

Reference.—[1]*Glasgow Med. Jour.* June, 1902.

SOLANUM CAROLINENSE.

Dr. M. C. Thrush[1] concludes that this drug seems to be of some value in modifying the severity of **Epileptic Attacks** and in diminishing their frequency. Some years ago the writer of this article employed the drug in a considerable number of cases ; and while at first it seemed to possess some anti-epileptic power, in the end it was concluded that the apparent improvement might be as dependent upon coincidence as upon any action of the remedy.

The number of cases in which it was tried was not, however, so large as that reported by Dr. Thrush.

REFERENCE.—[1]*Phil. Med. Jour.* May 10, 1902.

STRYCHNINE.

Strychnine has been strongly recommended as a remedy in the treatment of **Ileus** after abdominal operation, and a considerable number of cases have now been reported in which this drug has seemed to be beneficial. It will also be recalled that **Atropine** has been found to possess valuable influences in the presence of this dangerous complication.

STYPTICIN.

Under the name of Stypticin the readers of the *Medical Annual* (see vol. 1900, p. 21, and vol. 1901, p. 384) are probably familiar with this product, closely allied to hydrastinine, and whose technical name is cotarnine hydrochlorate. It has found its chief employment for the purpose of controlling **Uterine Hæmorhage,** in which it still holds its ground. It is claimed by those who have used it that it is usually prompt, and does not often produce other symptoms, although its general influence upon the system is that of a sedative, having a tendency to relieve pain and to produce sleep. It has also been employed by some practitioners in the treatment of **Pulmonary Hæmorrhage,** but in our opinion it is doubtful whether it can really be of much value in this condition, particularly if the blood comes from the pulmonary system of vessels. It will be remembered that stypticin is given in the dose of from 3 to 8 grains four times a day in cases of uterine subinvolution and menorrhagia, and if 8 grains are given, sleep, which is said to be pleasant in character, is sometimes induced.

UROTROPIN.

Urotropin, while having established itself as a valuable drug for the purpose of correcting alkaline urine with bladder irritation, is capable of occasionally producing disagreeable results. In one instance, reported to us by a friend, its administration caused **Hæmaturia,** and we notice that Langdon Brown has reported two cases in which the administration of 10 grains of urotropin in water three times a day caused pain and difficulty in urination, and finally the passage of bloody urine. When the administration of the drug was stopped, this symptom disappeared. In a second case the same dose of urotropin also

produced hæmaturia, which disappeared speedily when the drug was stopped. These results in no way militate against the employment of urotropin as **a Genito-Urinary Antiseptic,** but they emphasize the important fact that all drugs which are capable of causing good results, are also in certain instances capable of doing damage.

Not only has urotropin been found most valuable as a urinary antiseptic, but as an antiseptic in the gastric intestinal tract as well, and it is now largely employed in typhoid fever for the triple purpose of affecting the urinary organs, preventing the spread of the disease through the urine, and for its intestinal effects.

X-RAYS, HIGH FREQUENCY HIGH POTENTIAL CURRENTS, AND LIGHT TREATMENT. *John Macintyre, M.B., C.M., F.R.S.E.*

Apparatus (*Coils and Machines*).—During the past year, further improvements have been made in the apparatus for the production of X-rays. In the first place the construction of coils has received careful consideration, and many of them are now being sold with arrangements for varying the number of layers of the primary coil to suit different interrupters. By simple mechanical arrangements any one or all of the primary layers can be introduced, and so the necessity of having extra instruments for varying the self-induction has practically disappeared.

While the old controversy as to the relative advantages and disadvantages of the coil and the static machine has not quite come to an end, nevertheless it may be fairly said that in this country at least the coil is still more frequently used than the influence machine. On the other hand, on the Continent, and in France particularly, a considerable number of workers have been using the Wimshurst machine, one of the best of the recent forms of which has been lately introduced by Gaiffe, of Paris (*Fig.* 1). All workers with static machines are aware of the imperfect mechanical arrangements and faulty design in construction which have given so much trouble in the past; consequently a new machine, such as the one here referred to, thought out upon scientific lines and strongly built, will be welcomed by all those engaged in this work. The principal feature of Gaiffe's model is to be found in the fact that each pair of plates is supported upon an independent iron pillar, and in this way bending or twisting of the main shaft is practically an impossibility.

Again, the bearings are so simply arranged that the whole machine can be taken to pieces in a few minutes and cleaned. Lastly, the plates being of vulcanite, the speed for long periods may reach as high as 1000 revolutions per minute. The main disadvantage of the instrument is due to its being non-self-exciting, but in any ordinary climate this really does not make much difference. Moreover, by rubbing one finger on the palm of the other hand, and touching one of the plates while it is

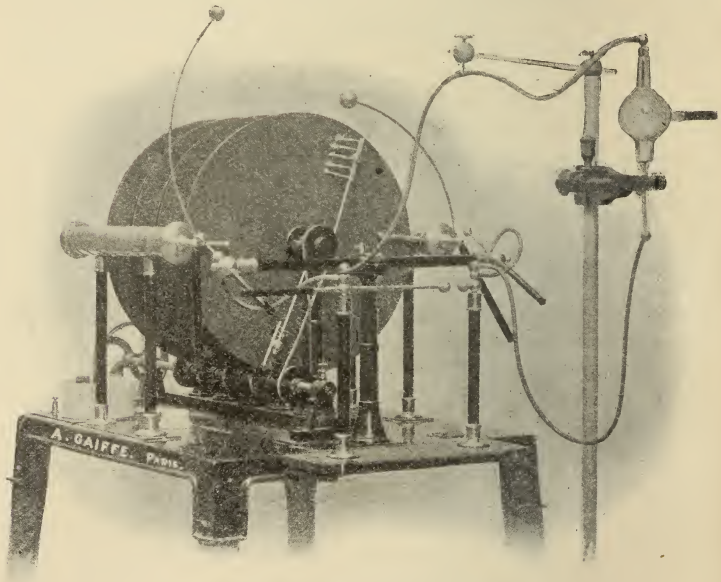


Fig. 1.—Gaiffe's Static Machine.

revolving, the machine usually excites at once. Failing this, the firm supplies a specimen of a tin compound which, when rubbed on the finger, excites the machine still more readily.

One of the great advantages of the static machine is to be found in the absence of flickering when one is using the fluorescent screen. Perhaps it might also be added that the ease with which one can see shadows of different densities by simply controlling the speed of the plates is also a great recommendation. No doubt this same advantage is obtained when the Wehmelt interrupter is used with a coil, but then this is often an expensive

matter with tubes. Many workers consequently prefer for fluorescent screen work to make use of the static machine. These views are all the more important when we remember that many physicians are now constantly making use of the X-rays in diagnosis, especially in the regions of the lung and heart. From all standpoints, therefore, even if we regard it, as some who are provided with a coil may be inclined to do, as a luxury, a reliable static must prove a great advantage to many.

Interrupters.—The question of interrupters has again been carefully considered, and some improvements have been made in the Wehmelt, which enables it to run for a longer period without heating. Mackenzie Davidson's form still remains a favourite, and Dean has produced a new form of mercury dipping apparatus which promises to do well for all ordinary work at least. The Contremoullins interrupter has been highly spoken of by some during the last year, and one of its advantages lies in the fact that one can adjust the spark for any length, and it can be used directly from the main up to at least 250 volts. It consists of an insulated circular plate with two strips of metal fitted round its margins, leaving two intervals between the ends. This revolves in paraffin, contact being made by means of two carbons, and it is by adjusting these nearer or further away from each other—an operation which is easily performed by simply turning a handle—that the length of the spark is obtained. Many workers in therapeutics on the Continent recommend this new form.

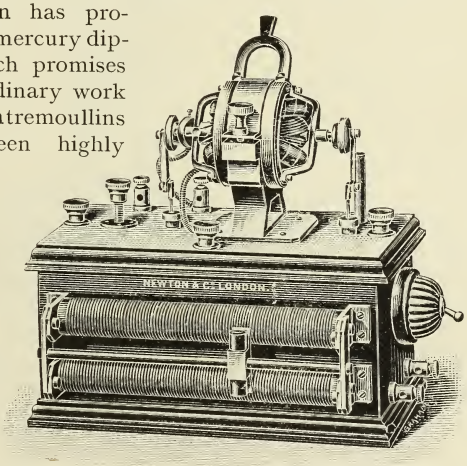


Fig. 2.—Wright's Combined Motor-Mercury Break and Rectifier.

Newton & Co., of London, have also produced a new interrupter for the alternating current, but it can be also used with the constant current (*Fig.* 2). Mr. Wright, whose invention it is,

describes it as : A combined motor mercury break and rectifier, designed for using coils direct on an alternating circuit. The arrangement is to " pick up " all the pulsations in one direction, and to " break " the circuit during the periods of reversal. The same instrument can also be used as a mercury break with the continuous current.

Tubes and Accessories.—No great change is to be recorded in the making of Crookes' tubes. The so-called record tube of Cox has become very popular, and Queen's tube, Philadelphia, which has now been before the profession for some years, is

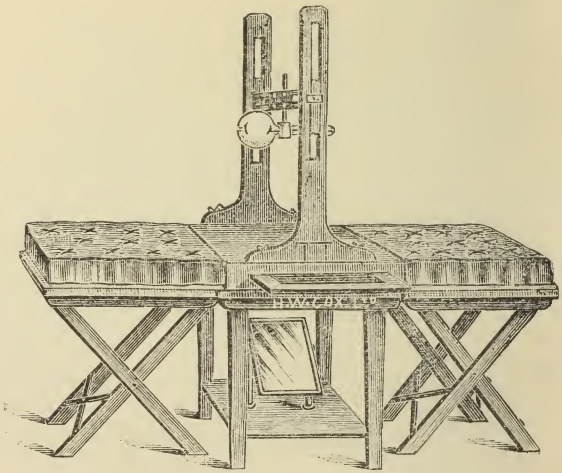


Fig. 3.—Macintyre's Couch for X-Ray Work.

still preferred by many, such as Lenard, whose magnificent work in detecting stone in the kidney and ureter, is well known to the profession. Gaiffe, of Paris, has recently introduced a new form into this country called the Chaband-Villard. By heating a small platinum wire fixed into the bulb or a platinum tube over this, one can drive air in or take it out so as to vary the vacuum at will. On the Continent this tube is daily becoming more popular. A very large tube, with new arrangement for increasing or decreasing the vacuum, has just been brought out by Hirschman, of Berlin. It has water cooling arrangement, and is designed for the largest coils.

Many accessories, doubtless some of them of value, have been

put in the hands of physicians and surgeons during the past twelvemonth. Improved couches, for the taking of photographs, localising apparatus, and screens, have been devised. Cox is bringing out a combined table and couch suggested by the author, which is very portable (*Figs.* 3 and 4). It can be put together very easily when required, or taken to pieces, and so it is useful where limited space, say in the consulting room, makes such an apparatus desirable. Photographs may be taken from above or from below, and by means of a reflecting mirror the part being photographed can be seen during exposure. Alterations in the tube,

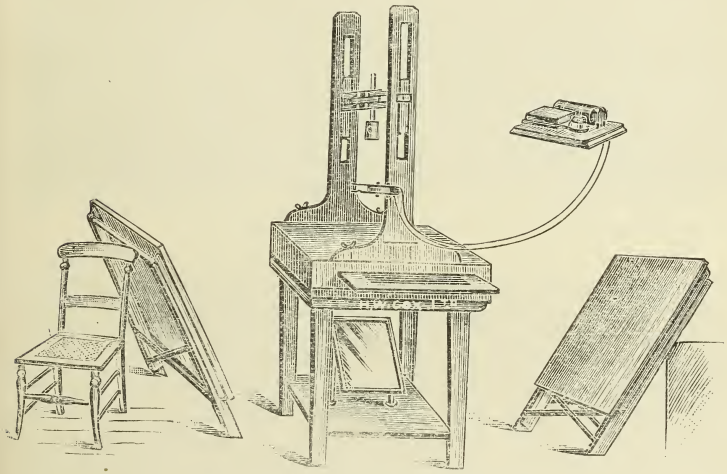


Fig. 4.—Couch with End Tables Removed.

and diminution or absence of the X-rays. can at once be detected, thus enabling one better to gauge the time of exposure. There is a special arrangement for introducing the plates without necessitating the operator bending underneath the couch, and also a special device by means of a relay is introduced into the primary circuit for taking a photograph when the chest or abdomen is moving. Holznecht, of Vienna, has introduced an arrangement similar to what is called a photometer in ordinary photography, for measuring the rays. He calls it the chromradiometer. Benoist, of Paris, has also introduced a radiochromometer which consists of a disc of varying thickness, so that we may be able to judge of the penetration of the tube.

Hospital Work.—A feature of the year's work has been the improvements in departments connected with hospitals. In nearly all the great hospitals throughout the world, and in many of the smaller ones, departments have been created or enlarged so as to meet the growing demands of the surgeons and physicians on the staff. The most interesting advances and increase of work have been in the therapeutic departments. *Plates I, II, III* represent the new electrical building attached to the Glasgow Royal Infirmary, designed by the writer, and completed in 1892, and which is but one of the many instances which can be quoted in support of the statement that the electrical departments of hospitals are daily becoming of greater importance in the estimation of the staff. In *Plate I*, *Fig. A* represents the electrical pavilion generally, and *Fig. B* the large electro-magnet for extraction of bodies. *Plate II* represents in *Fig. C* the large Wimshurst machine built by Lord Blythswood, and consisting of forty plates 36 inches in diameter, and in *Fig. D*, Dean's high-frequency electrical apparatus. *Plate III* shows in *Fig. E* the X-ray department and couch, and in *Fig. F* the transformer and apparatus for various forms of light treatment.

Forms of Treatment.—A considerable number of writers have dealt with the question of which waves in ether are most likely to be efficacious in certain diseases, and consequently we have had many different expressions of opinion as to the relative value of X-rays, high frequency, high potential, and light treatment. In some cases it is not difficult to choose the particular agent ; *e.g.*, the disease may be situated in a cavity where light treatment cannot be applied. On the other hand, many affections, particularly of the skin, can be treated by any of the forms now at our disposal. The relative advantages of each method can scarcely yet be stated, and indeed if the cure were equally satisfactory in all, the question of recurrence after one method of treatment as opposed to others could not yet be settled. Moreover, as all these different forces are related to each other, it may be justifiable to make some remarks about each.

With regard to the *Light treatment*, it may be said at once that Finsen and many others are steadily pursuing their experimental researches, and the reports of positive results quite confirm the earlier opinions expressed about the therapeutic value of it. Finsen's lamp, which is expensive and anything but portable, has been modified in various ways. The Lortet-Gounod has found its way into many hospitals in this country,



Fig. A.—Electrical Pavilion, Glasgow Royal Infirmary.

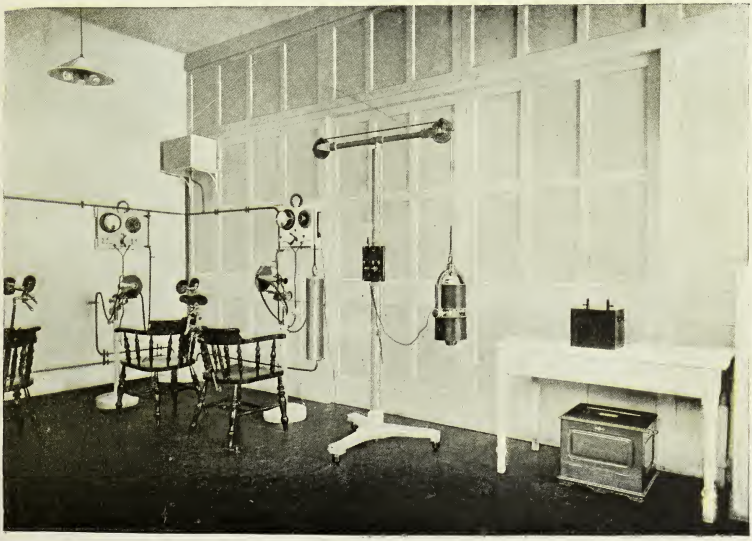


Fig. B.—Electro-Magnet, Glasgow Royal Infirmary.

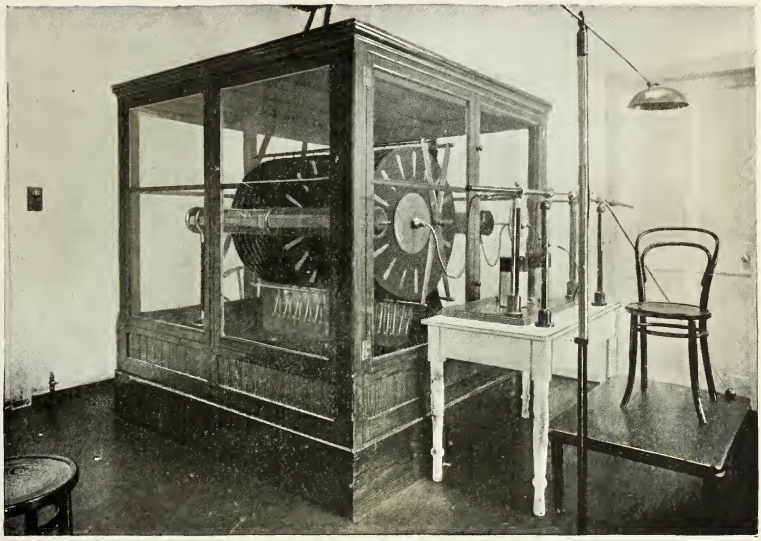


Fig. C.—Large Wimshurst Machine, Glasgow Royal Infirmary.

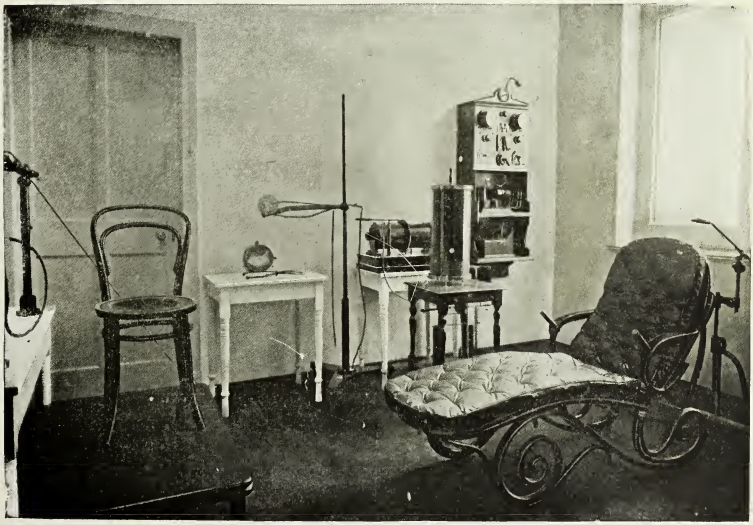


Fig. D.—High Frequency Apparatus, Glasgow Royal Infirmary.

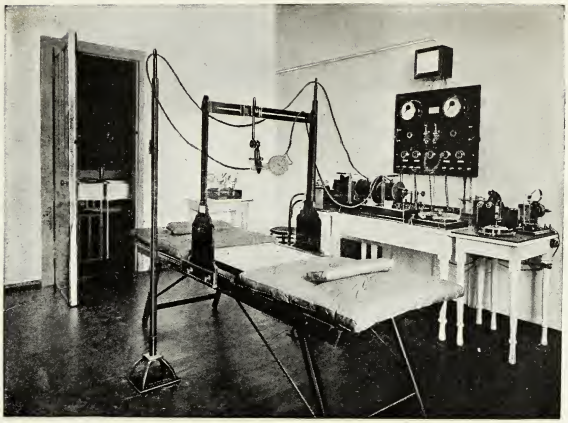


Fig. E.—X-Ray Department, Glasgow Royal Infirmary.



Fig. F.—Apparatus for Light Treatment, Glasgow Royal Infirmary.

largely owing to the efforts of Dr. Sequeira during the past year and many workers declare that in addition to its cheapness and portability, they find it satisfactory inasmuch as it reduces the time of exposure and the number of sittings. It should be noted, however, that this opinion is not universally accepted. Another lamp has been introduced during the same period by the Sanitas Company, called the Dermo lamp, and it is justly favoured by practitioners, inasmuch as it is portable and exceedingly suitable for the private consulting room. This is a modification of Bang's principle, as the arc is struck between two iron electrodes, which are hollowed out so as to permit of a circulation of water in them for cooling purposes. This lamp is rich in violet and ultra violet rays.

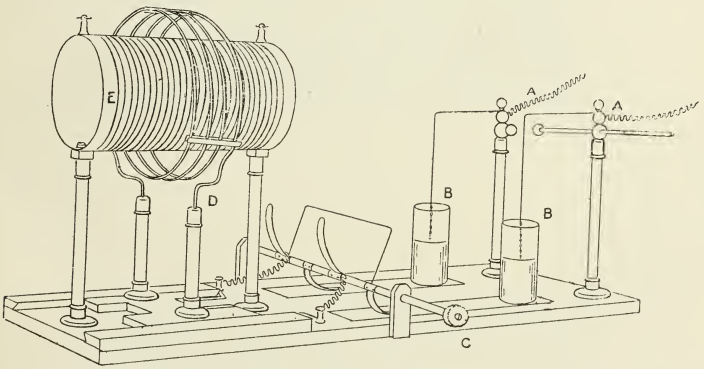


Fig. 5.—Arrangement with Reverser, and Exciting High-Frequency Apparatus by Static Machine instead of Induction Coil. (*Medical Supply Assoc., Edinburgh.*)

Passing to the question of *high-frequency currents*, it may be said that many firms have placed exceedingly useful and efficient instruments before the profession, with various improvements, during the past year. Gaiffe, of Paris, has produced an improved and excellent model of D'Arsonval's apparatus, and instead of using Leyden jars, an oil condenser is preferred by this maker. Dean, of London, has produced a new model called his double resonator, and from it much is hoped for by way of more efficient high-frequency currents and in therapeutic results. Lastly, a new arrangement has been provided for applying the static machine instead of a coil for the production of high-frequency currents. A very suitable form for this purpose is a

small model of D'Arsonval's apparatus, Leyden jars or oil condensers being used. When this has added to it a special device for reversing the current as it comes from the condensers, a useful outfit for the practitioner who has a static machine is produced. Dr. Greville, of the Medical Supply Association, Edinburgh, has introduced such a combination designed by the writer of this article, on these lines (*Fig.* 5).

THERAPEUTICS.—During the past twelve months, a great many more cases of chronic affections, such as **Lupus, Malignant Ulcers,** and **Epithelioma,** treated by one or other of the new methods, have been placed on record. That we have a powerful agent in the X and other rays, no one can now doubt, although the time has not yet arrived for a comparison being drawn between the older methods and the new. In speaking of the older methods, we do not include the light treatment, but more particularly local applications and surgical procedure, such as cauterization, curetting, or excision, which have long been used by the profession. Further, many observers hold that exceedingly good results are to be obtained by injections of tuberculin, but while one does not wish at the present moment, as has been said, to enter into a comparison of the advantages of the different methods, still, everything that has been done during the past year tends to confirm, rather than take from, the somewhat hopeful views which have been expressed about the efficacy of treatment by X-rays, high frequency, high potential currents, and light.

Epithelioma and Rodent Ulcer.—No cases have attracted such an amount of attention as the epitheliomatous, and here it is necessary to define clearly what is meant by cases of **Epithelioma,** which are constantly being referred to in journals. A number of these reports have found their way into the daily press under the heading of *cancers*—a fact which is to be regretted, because false views may be entertained by sufferers or patients' friends. We are safe in stating, however, that no really satisfactory results have been placed on record, if we include the deeper tissues or organs lying within the deep cavities of the body. So far, therefore, the results to which we now refer must be recorded as only those in superficial epithelial affections, or within cavities accessible from close proximity to the surface of the body.

The case of Dr. Sequeira's, represented in the accompanying photographs (*Plate IV*), is interesting on account of the long standing nature of the disease, and the time which has now

PLATE IV.

RODENT ULCER.



Fig. A.—November, 1900



Fig. B.—March, 1901.

elapsed since the treatment stopped. In this case the lesion showed a deep excavation with a dirty base, from which blood constantly oozed. The patient had to give up his business on account of the ulcer. The first photograph (*Plate IV, Fig. A*) shows the result of treatment in November, 1900, and the second (*Fig. B*) in March, 1901. The ulcer has completely healed ; rapid progress was made in the reparative process ; and the patient remained well at the end of November, 1902.

Careful examination of the reports of cases under such headings as "superficial epitheliomata" or "superficial carcinomata," are really, in many instances, what are ordinarily known as cases of rodent ulcer. In classifying the work done, it might be advantageous if the profession would keep rodent ulcers in one distinct group; because, although it may be looked upon as a form of epithelioma, its clinical history, glandular development, slow progress, and rare recurrence are so different, that such cases can easily be kept apart from others which may be described as true epitheliomata.

Dealing with the question of rodent ulcer, however, for a moment, it may be stated that many cases of a successful nature have been recorded in this country, and on the European and American continents, during the past twelve months. In one case of the writer's, there has been no recurrence after three and a half years, and in this patient (the lesion was at the side of and in the nose) surgical procedure had three times been tried previous to the application of the X-rays. The question of recurrence, however, is one to be carefully kept in view, and sufficient time has not yet elapsed to test or compare. The results, have in many instances been apparently very satisfactory, and the method is at least a very promising one.

Carcinomata.—Coming to the most serious cases to which we have referred, *viz.*, true carcinomatous disease, have we any clear record of a promising nature ? In answer to this question it may be said, that there has been evidence in a limited number of cases of distinct improvement in patients suffering from superficial carcinomata, and this evidence is still accumulating, as will be seen from the references to recent literature on electro-therapeutics quoted at the end of this paper. The photographs accompanying these notes may be taken as examples.

In *Plate V*, a case is photographed which came under the observation of the writer of this article. The patient, a woman aged fifty-eight, consulted him on account of a tumour

of the nostrils and gums. She had suffered for thirty-eight years from an affection which had been diagnosed as lupus, but after consultation with a number of surgeons, it was agreed by all those who saw her that the disease was then malignant. She was sent to London, where she was refused the light treatment, but X-ray treatment was given with a considerable amount of success, because the parts healed externally, the skin of the face was healthy, and there was a considerable diminution of the size of the neoplasm at its anterior extremity. *Fig. A* in *Plate V*, shows the external appearance of the patient when she returned at the beginning of this year. A portion only of the tumour had been removed, and recurrence had afterwards set in, as was seen by the exuberant growth, offensive discharges, and pain. Moreover, the disease had made its way behind the lip on to the upper gum, showing an affected area about half an inch in diameter of typical epithelioma above the incisor teeth. On examining the patient, a large neoplasm, filling the whole of her nostrils, was seen. It projected forward to the outside skin of the nostrils, had involved the hard and soft structures throughout the nostril, and was projecting into the naso-pharynx. The alæ were distended, the tumour was dark red in colour, there was abundant discharge of a muco-purulent nature, and occasionally slight hæmorrhage ; the mass had begun to ulcerate, and had extended behind the lip to the gums near the incisor teeth. All sense of smell had been lost. She was treated by means of the static machine and X-rays, daily for a considerable time, and, in all, was under treatment something like six months, although from time to time, owing to reaction, there have been intervals of a week or ten days' duration. For a long time the results were disappointing, but at last the growth began to show signs of breaking up. Bit by bit, the tumour diminished in size, and after three months' treatment she was able to breathe through an opening in the left side. The tumour gradually disappeared, the sense of smell returned, and now, although the septum and the turbinated bones have been destroyed, the inside of the nose is free, the mucous membrane has healed, and the sense of smell is as good as ever it was. The lesion under the upper lip has also disappeared. *Fig. B* shows the appearance in September, 1902. A description of this case, as well as notes of the results obtained in other patients suffering from epithelioma of the upper respiratory tract and the mamma, will be found in the *Glasgow Medical Journal* for November, 1902.

PLATE V.

EPITHELIOMA.



Fig. A.—February, 1902.



Fig. B—September, 1902.

CARCINOMA.

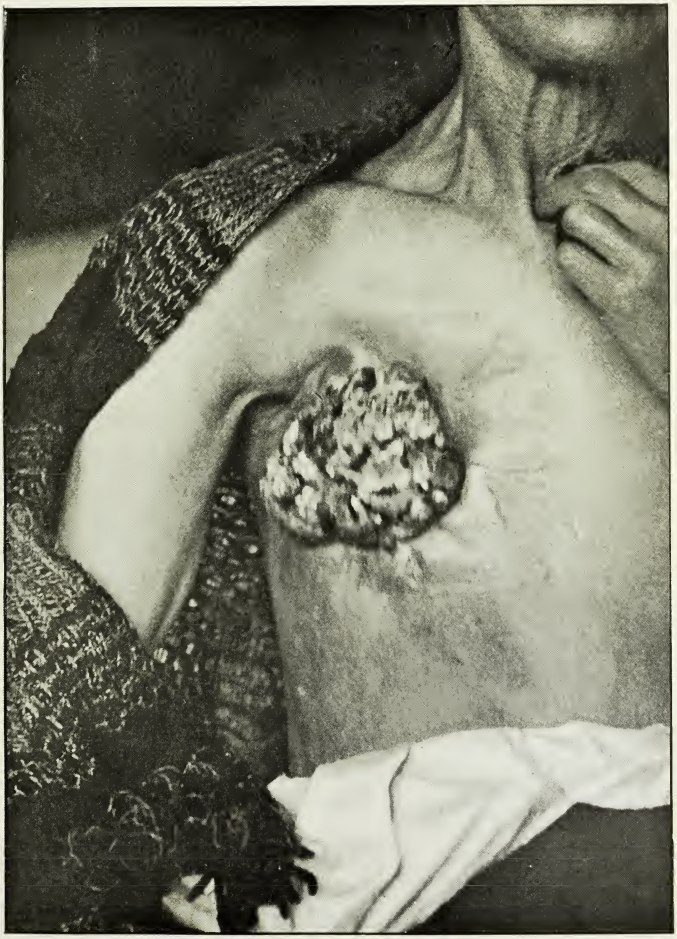


Fig. A.—Clark's Case, September 23, 1901.

PLATE VII.

CARCINOMA.



Fig. B.—Clark's Case, July 25, 1902.

In the other case, reported by Dr. Andrew Clark, of London, a woman aged seventy-one, who came under observation in February, 1901, had suffered for twelve years from the affection, which began as a small lump in the right mamma. The growth was slow, but two months before coming under the notice of Dr. Clark, it had taken on rapid increase in size. Two severe attacks of hæmorrhage had taken place ten months previously. Treatment was begun on the 23rd September, 1901 *(Plate VI)*, and the case at the end of November, 1902, was still under observation. The improvement in the conditions will be apparent from the photograph in (*Plate VII*), which was taken in July, 1902. The rays were applied for ten minutes, five days in the week, with occasional intervals. There has been great relief of pain, and since the last photograph was taken changes in the condition have been very slow. When the rays are left off she complains of recurrence of pain. For the first twelve months the patient was for the most part in bed, but for the last ten months she has been up nearly every day, and is now able to go out of doors. In this case, the treatment has lasted for a considerable length of time; but similar results have been obtained in much less time by others. Pusey wrote an excellent paper upon this subject in the *Journal of the American Medical Association* for the 12th April last year, which we commend to all readers, and in the same work an exceedingly interesting editorial article on the works of Allen, Morton, Rinehart, Lee, Williams, Johnson, and others, will be found.

The above cases are merely illustrative of what have been placed on record on this side of the Atlantic, and some excellent results have been recorded by a number of writers in America. The disappearance of the tumour as seen by the eye is confirmed by microscopical examination. If sections of the ulcer are taken during the process, it is seen that the epithelial new growths infiltrating the tissues disappear; degeneration apparently of some kind takes place in the nuclei and cells. Presumably some process of absorption sets in, and the matter which originally represented the epithelial structures disappears. After this healing takes place in the deeper tissues, and ultimately a superficial epithelial covering of a normal type takes place.

A great many interesting points are noticed during treatment, and many of these have been independently recorded by different observers. One of the most striking is the relief, and in some

cases the subsidence altogether, of **Pain.** This may take place soon after treatment is begun. Often within a week or a fortnight the pain becomes gradually less marked, and in many instances altogether disappears. The hardened masses surrounding the original lesion become absorbed, and parts which had been involved and irritated, resume their normal appearance. Œdema subsides, glands disappear, and one writer, Dr. Morton of New York, has noted the fact that glands at a distance may also resume their normal appearance. Offensive discharges cease, and with the great change in the local conditions above described, the general health of the patient improves.

It must be acknowledged that the majority of workers have approached this difficult subject with a due sense of responsibility, not only in publishing the results, but also in predicting what may occur in the future. Too often, in the past, electrical treatment has suffered from over-enthusiasm, and it would be a matter for serious regret were anything to occur which would bring on the inevitable reaction in thought.

The question as to which cases should be tried is a very serious one. Those who have placed the most successful results before us are careful to point out that they would only suggest X-ray or similar treatment for malignant cases where ordinary surgical procedure cannot be employed ; in other words, in inoperable cases, or it might be in persons who have refused operation, although the surgeon is willing to undertake the responsibility. With cases of recurrence, however, it is different ; in these it might be justifiable, and doubtless in many cases it is, to try say X-ray treatment. Again, some surgeons have recommended partial removal so far as it is consistent with safety, as a preliminary, and then the application of the X-rays. What the ultimate result will be, cannot, at this stage of the experimental work, be safely predicted, and sufficient time has not yet elapsed to give us anything like responsible statistics about recurrence.

There are disadvantages in this method of treatment. For example, the parts on the surface may heal, and the disease may spring up elsewhere, not necessarily as a result of treatment, but in parts of the body where we cannot get at them by means of the rays. Again, treatment is very slow, and reactions (should they occur) may be very painful. Lastly, in a number of cases, operators who have been working with the X-rays, while treating patients, *have developed epithelioma.* Dr. C. W. Allan read a paper at a meeting of the American Dermatological Association

in Boston last September, and in the course of his remarks dealt with the injurious effects. He considers that severe symptoms in the region of the heart, lungs, and other internal organs may occur, and growths may form more suddenly than we are accustomed to see in patients who have not been so treated. Moreover, malignant disease may follow the injurious effects produced in persons not known to be predisposed. He cites an instance of a case of a tube maker whose arm required to be amputated for carcinomatous mischief developing in an X-ray burn. Dr. J. C. White in the course of the discussion, reported a case of carcinoma of the skin which had developed in the site of an X-ray dermatitis ; and in this country last year a case of malignant disease beginning in a burn of the finger, occurred. In this instance the physician himself developed the symptoms, first locally, and afterwards in other parts, with fatal result.

In last year's *Medical Annual*, it was pointed out that X-rays had been tried in **Lupus Erythematosus** by Schiff, Jutassy, Hahn, and Grouven ; in **Eczema** and **Psoriasis** by Hahn, Tiemssen, and Albers-Schönberg ; and in **Hypertrichosis** by Freund, Schiff, Jutassy, Albers-Schönberg, and Miss Sharpe. Experiments had also been made in other diseases of the skin by Sorel and Soret, Sequeira, Startin, Sjogren, Sederholm and Stenbek, while **Nævus, Acne,** and **Varicose Ulcers** were amongst the affections in which X-rays had also been tried. Continued reports are still coming in, and daily more evidence is being obtained of the value of the rays, which must ultimately prove of benefit to the profession in coming to a conclusion as to their value.

References to literature bearing upon Electro-theraphy.—Allen, *New York Med. Rec.* Jan. 25, 1902 ; Beck, *Med. Rec.* Aug. 1902 ; Brooke, *Lancet*, Jan. 11, 1902 ; Thos. Bryant, *Brit. Med. Jour.* Dec. 7, 1901 ; Buchanan, *Trans. Phil. Acad. of Surg.* Aug. 1902 ; Clark, *Brit. Med. Jour.* June 8, 1901 ; Coley, New York Acad. of Med. and *Jour. Amer. Med. Assoc.* Aug. 1902 ; Le Compte, *Trans. Phil. Acad. of Surg.* Aug. 1902 ; Ferguson, *Brit. Med. Jour.* Feb. 1, 1902 ; Hearn, *Trans. Phil. Acad. of Surg.* Aug. 1902 ; Hett, New York Acad. of Med. Mar. 6, 1902 ; Jamieson, *Lancet*, Jan. 4, 1902 ; Johnson, *Phil. Med. Jour.* Dec. 8, 1900 ; Lyster, *Brit. Med. Jour.* Dec. 7, 1901 ; Macintyre, *Glas. Med. Jour.* Nov. 1902 ; David Morgan, *Lancet*, Feb. 22, 1902 ; Morrill, *Phil. Med. Jour.* Dec. 8, 1900 ; Malcolm Morris, *Lancet*, Aug. 10, 1901 ; Morton, *Med. News*, April 5, 1902 ; Peters, *Brit. Med. Jour.* March 1, 1902 ; Pugh, *Ibid.* April 12, 1902 ; Pusey, *Jour. Amer. Med. Assoc.* April 12, 1902 ; Sequeira, *Lancet* and Brit. Med. Assoc. Feb. 2, 1901 ; Miss Sharp, several papers

in the *Arch. of Rönt. Rays*, London ; Sjogren, *Schieff's Rönt. Therapy* ; Startin, *Lancet*, July 20, 1901 ; Stenbek, *Schieff's Rönt. Therapy* ; Francis Stewart, *Trans. Phil. Acad. of Surg.* 1902 ; Stockford Taylor, *Lancet*, Aug. 10, 1901, and May 17, 1902 ; Dawson Turner, *Ibid.* Feb. 15, 1902 ; White, *Med. Exam. and Pract.* New York, Oct. 1902 ; see also editorial and abstracts relative to the work of Williams, Johnston, Allen, Morton, Rinehart, and Lee, April 12, 1902, *Jour. Amer. Med. Assoc.*

ELECTRO THERAPEUTICS.

A. D. Rockwell, A.M., M.D., New York.

What is the place that electro-therapy should hold in the nomenclature or ethics of the healing art ? For electro-therapeutics cannot be considered a speciality in the sense that neurology, or ophthalmology, or laryngology are specialties. Like hydro-therapeutics, it is simply the application of a single remedy, though one having an enormously wide range, to diseased conditions. Thus electricity belongs to every general practitioner, but more distinctly, perhaps, to the neurologist. It often aids him in diagnosis and prognosis as no other instrument can, while as a palliative in some organic conditions, and as a curative in some of the functional neuroses, it is indispensable. It also belongs to the surgeon ; for the cautery, electrolysis, and X-rays give him valuable adjuncts to his knife, and in some cases supersede it. Gynæcology, obstetrics, opthalmology, laryngology, can all find more than occasional uses for its powers ; while its well attested influence over nutrition must give it a place in general medicine.

Unfortunately a far more intimate acquaintance with the physics and physiology of electricity, and with the laws which govern its action on living tissues, is demanded, than the average practitioner can claim to possess. He must recognize that electricity is a generic term, not for some simple, single manifestation of force, but susceptible of so many modifications of its units of measurement, that its various currents so-called, may be said almost to differ in kind as well as in degree. How many physicians who utilize electricity, have studied or even clearly understood Ohm's law ? Yet this law is the foundation upon which is built the whole superstructure, and *without a knowledge of it no one can be a master in electro-therapeutics.*

This great law is expressed in the formula, $C = {}^{E}/_{R}$. In other words, current (C) equals the electro motive force (E), divided by

the resistance (R). E, or electro-motive force, is the force that urges on the current. R (resistance) is that quality of a conductor that impedes the passage of electricity. C is the current strength, resulting from the two former. With no resistance, the current would equal the electro-motive force; but as every circuit must offer some resistance, the current can never equal the electro-motive force. The unit of electro-motive force is the *volt*. The unit of resistance is the *ohm*. The unit of current strength is the *ampère*. An electro motive-force of *one volt*, passed through a resistance of *one ohm*, yields *one ampère* of current.

The importance of Ohm's law can now be seen. The strength of the current varies directly as the electro-motive force, and inversely as the resistance. Therefore, by this law, one volt passed through a resistance of 1000 ohms, yields but 1-1000th of an ampère, or one milliampère. The human body, generally speaking, offers some thousands of ohms of resistance; hence in therapeutics, the *milliampère* becomes the practical unit of measurement, rather than the ampère. The ordinary mind is often confused through ignorance of the relationship of these units of measurement. The adoption of electricity in the State of New York as the method of execution, has made it generally known that "1700 volts" are sufficient to kill; yet many thousands of volts are every day being applied to the human body for the relief and cure of disease. But it is simply a question of electro-motive force, or potential, together with *amperage, or quantity*. A current of high potential, for therapeutic purposes must necessarily be of very low amperage; and when the amperage is high the potential must be low.

The "strength" of a current about which we say so much, is measured in ampères, or fraction of an ampère. The quantity of electricity conveyed by a current of one ampère in one second, is called one coulomb, but in therapeutics it is more necessary to know the current strength, or amperage, than the absolute quantity as indicated by coulombs. Yet it should not be forgotten that it is quantity that decomposes chemical substances, and the operation of electrolysis largely depends upon the quantity of electricity that flows through the tissues acted on.

Static electricity has but little quantity or current strength, but has an enormous electro-motive force or pressure; and through the electro-tonic, and perhaps some chemic changes produced, and its influence over metabolism, it is capable of

important therapeutic effects. It aids also in the relief and cure of disease by changing the electric condition of the patient, in giving a positive or negative charge, for a greater or less length of time. Still more remarkable are the effects of high-frequency currents of high tension, which often have subtle and far reaching effects. On the contrary, currents of magnitude, or large amperage, as the galvanic, or the faradic in less degree, do not charge the body with electricity, or leave in it any more electricity than they find there.

In thus emphasizing the importance of a clear understanding of Ohm's law, it is not to be understood that no one should use electricity who has not fully mastered its physics and physiology, or whose practical experience is but limited, or whose variety of apparatus is meagre. Let such an one work cautiously with what skill and appliances he has. His motto should be, "Much too little, rather than a little too much," for electricity in medicine is an important factor for good or evil; and he should always work aided by *measurements and records* of what currents or potential he is using. The greatest evil is the utterly unscientific spirit of many. The writer has received a letter from a physician asking, "What kind of electricity he should use in a case of neuralgia, and how to use it"? The idea of this correspondent, that but little preliminary study or experience is required to successfully utilize in therapeutics so powerful a force, and one having such a wide range as electricity, is but too common. Another correspondent wished to know my experience in the treatment of locomotor ataxia? "He had cured several cases, and had dissipated several fibroid tumours by internal applications of the faradic current!" Still another physician affirms that he has "broken his heart over electricity," that "he has found it almost worthless as a therapeutic agent."

It is thus not enough that one should be equipped with every modern appliance for electro-therapeutic work. Most sanatoria and many public hospitals are well equipped; but how much intelligent and effective electro-therapeutic work is done in these institutions? It is so far commendable to supply oneself with a complete working equipment, even while largely in ignorance of its proper use, provided one uses it as a basis of growth, and measures and records *how* it is used in every case; but worse than useless if there is no growth founded on real study. Aside from any actual injury that haphazard and ignorant application may inflict, it does harm by conveying the impression that what

the incompetent does, is all there is to be done in electro-therapeutics. In one establishment within the writer's knowledge, there was recently installed an enormous static machine at a cost of several thousand dollars. The owner was (and still is) quite ignorant of first principles, but he now *poses* as a master in the art. It is so easy to learn to set in motion an apparatus, big or little, static, faradic, galvanic, sinusoidal, or high frequency; and it is so difficult for the *victim* to know whether he is receiving expert or non-expert treatment! The case of the correspondent who had cured both locomotor ataxia and fibroids with the faradic current, was simply that of an illogical mind having no adequate acquaintance either with the pathology of the disease, or the energy utilized.

One of the most difficult problems in electro-therapeutics is to correctly differentiate between the various manifestations of electricity, and select the form most suitable to the case in hand, adjusting its measurements accordingly. If we wish mechanical effects, we select alternated currents of slow or rapid make or break; for chemical effects only currents giving a considerable amperage are applicable; while physiological effects of some kind, like physical effects, are excited by every possible manifestation of electricity. Mechanical, physical, and chemical effects, although more or less modified by vitality, are not peculiar to living bodies. Physiological effects, on the contrary, take place by virtue of the vital properties of the body. Currents of enormous potential have undoubtedly widened the sphere of usefulness of electricity in developing physiological phenomena, yet it may be doubted whether they excite any really new physiological effects.

The fundamental idea of the therapeutics of electricity, is its *nutritional* influence, an idea enunciated and developed years before the discovery and utilization of high-frequency currents. There is no form of electricity but has a certain influence in this direction; yet for the purpose of increasing general nutritional activity, exciting metabolic changes, and developing the potential energy of cell life, it is the general *consensus* of opinion, that in currents of high frequency and potential we have an energizing motor principle, superior to other electric modalities. Still, while welcoming the new, let us not forget the old, remembering that the magnitude of these high potential currents is practically *nil*, and that magnitude or amperage is in a multitude of conditions absolutely essential.

As has been well said, " If we wish to do our work scientifically, our motto should be measurement, measurement, measurement." So if we would get the best and quickest therapeutic results, our motto should be " differentiation." Not only must we strive to adjust electric modalities to pathological conditions, but the personal equation in each case should receive due consideration. Some patients react better to one electric modality, while others suffering from the same apparent pathological condition, for no apparent reason react better to another. No matter for what form of electricity one may have a preference, the worker who is supplied as he should be with every necessary variety of apparatus, will frequently have occasion to call in the aid of each.

Part II.—The Dictionary of Treatment.

A REVIEW OF MEDICAL AND SURGICAL PROGRESS FOR 1902.

By Many Contributors.

GENERAL REVIEW.

General Medicine.—The attention of investigators throughout the past year has been largely usurped by the study of *carcinoma* in all its bearings. Indeed, just as 1901 might be described (in this country at least) as a tuberculosis year, so 1902 may be fitly designated a cancer year. A vast number of papers, statistical, pathological, and clinical, have been published on this subject, abstracts of the chief of which will be found in the articles on "Cancer." While it must be admitted that no really new or striking results have come to light, much valuable work has been done, and the ground is being rapidly cleared for future research—research which it is to be hoped the recently appointed Cancer Committee may do much to organise and direct. Certainly at no previous period in the history of medicine have the efforts of so many skilled and laborious workers been directed to the elucidation of the nature and cure of this dreaded disease, and the results of their labours will be awaited with the liveliest interest by the whole profession.

The obscurity enshrouding the nature and production of *immunity* is also being gradually rolled away, and the past year has seen substantial progress made in our knowledge of this very intricate subject. No better account of the recent advances in this department can be found than in Professor Welch's recent Huxley lecture, which should be carefully studied by all who are interested in this fundamental topic. Along no line have the recent advances of knowledge been more rapid than this.

On the more strictly clinical side of medicine progress has not been so striking, but our views of many diseases have been amplified or connected by papers published in the past year.

The investigation of the *blood* and its diseases still attracts many workers, and in the articles on Banti's disease, chloroma, and splenic anæmia, much information will be found which throws fresh light on these obscure and rare conditions. The diagnostic value of leucocytosis in the detection of deep-seated suppurations has also received fresh support from recent work, and may now fairly claim to be a clinical indication which no practitioner can afford to neglect. From the articles on cirrhosis of the liver it will be seen that the classical views as to the nature and production of this affection are being gradually re-cast, and our ideas as to the causes which may produce it enlarged.

Of new methods of investigation, attention must be directed to *cryoscopy*, which promises to yield in future some valuable practical indications.—[R. H.]

* * * * *

Infectious Fevers.—There is unfortunately little, if any, advance to record in the treatment of infectious diseases during the past year ; nothing that can be compared with the discovery of the antitoxin treatment of diphtheria some years ago. Since the introduction of this treatment, intubation for laryngeal diphtheria, which previously had never attained to much favour in this country, has been again adopted in several hospitals with better results than in former years. Antitoxin certainly renders this operation more successful. It is not, however, an operation that is to be recommended in private practice, on account of the sudden emergencies that not infrequently arise.

With respect to typhoid fever, the justifiability of laparotomy in perforation of the intestine, or even in suspected perforation, is now firmly established, and during the past year some additional successful cases have been put on record. The bath treatment seems also to be coming into favour again ; with this difference, that tepid rather than cold baths are employed. For hæmorrhage, adrenalin chloride has lately been advocated, and in the few recorded cases its use has apparently been attended with success ; but a more extended experience is required before a definite opinion can be given as to its value.

A new serum treatment of scarlet fever has very recently been reported from Vienna ; but here again a much larger trial is required. Fuller accounts of these various measures will be found in subsequent pages.—[E. W. G.]

* * * *

Diseases of the Heart.—Although no noteworthy addition of a special kind has been lately made to the means at our disposal for dealing with diseases of the heart, yet there is evidence all along the line of a more accurate knowledge of their pathology, a clearer perspective of their clinical evolution, and a more intelligent and discriminating employment of remedial measures. We have come to realize better than before that the heart is not to be regarded from a narrow mechanical point of view, but as an organ with complex vital properties—partly nutritional and partly nervous ; in close functional connection with the vascular system, which again stands in subtle but intimate relation to tissue nutrition and innervation—both local and general.

From a closer study of disease in its dynamic aspects more attention is being paid to the *evolution* of cardiac troubles, and to the causes under which they arise and by which they are maintained ; and thus etiological indications for treatment are steadily acquiring—as they undoubtedly deserve—a fuller consideration than in the past.—[A. H. C.]

* * * * *

Lung Diseases.—The treatment of phthisis and tubercular disease has monopolised the attention of writers during the past year. Not only have very active measures been taken to secure for the consumptive that environment which all experience proves necessary for him, but views of the etiology of phthisis are undergoing a change which will help forward this particular work. The discovery of the tubercle bacillus led to a too exclusive view of the bacillus as the cause of tuberculosis. Under this impression, the destruction of the *bacillus* was to cure and prevent the *disease*. The tendency of more recent thought is to assign to the bacillus a place only, amongst the conditions which tend to produce phthisis. As in most diseases, it is necessary that two causes shall be acting together and come into juxtaposition before the result is produced ; and while much good may be accomplished by attention to one of these causes, it is equally important that others should not be neglected.

Amongst the remedies for tuberculosis, urea has had a prominent place in the writings of the past year, and so far the results have been very encouraging. Blue light has also attracted considerable attention. It is found that the blue light from a 32-candle-power incandescent lamp will pass through the body of a patient and destroy bacilli placed at his back. Compression of

the lung by means of injections of nitrogen gas in the pleural cavity, is claimed to have produced some very remarkable results. The sanatorium treatment, however, still occupies the first place in our attention, and is dealt with very fully in the special article in this issue.

The X-ray is now used more frequently than formerly in the diagnoses of lung disease, but it is doubtful whether it will ever replace physical examination.

There is nothing practically new to record respecting the treatment of bronchitis and pleurisy. In the former disease the combination of heroin hydrochloride and terpin hydrate is still very much favoured, and appears to yield excellent results in suitable cases.—[Ed.]

* * * * *

Nervous Diseases.—Progress in the treatment of diseases of the nervous system has chiefly been made on the lines of serum therapy. Some very remarkable experiments are recorded by Triboulet and Mathieu, who having accustomed a horse to imbibe freely, subsequently used its blood to form a serum, which they have named "Anti-Ethylene." This serum has been used for the treatment of chronic alcoholism. Even more remarkable are the efforts made by Ceni to determine whether the blood serum of epileptics contains an antitoxin which would modify the condition of a mild case. His results are noted under the article "Epilepsy." It has been made clear from the researches of both Ceni and Pellagrini that the blood of patients with epilepsy does contain a toxic substance, and that this toxicity is increased immediately after the attack. It has also been found that the so-called anti-epileptic drugs exercise no influence over the toxic character of the blood of epileptics.

The operation of thyroidectomy appears to be gaining ground as the best treatment for Graves' disease, although bi-lateral and complete resection of the sympathetic has its advocates. The treatment of the morphine habit by the use of large doses of hyoscine hydrobromate pushed to the point of producing intoxication, has been advocated by Lott. The value of electricity in the treatment of trigeminal neuralgia is considered by Allard to depend upon the use of very strong currents, from 50 to 70 m.a. for thirty to sixty minutes at each séance. He claims success by this method.

In Raynaud's disease, the value of the tourniquet has

been pointed out by Cushing. The effect of the tourniquet being to cause a temporary paresis of the vaso mechanism peripheral to the point of application, its removal causes a flushing of the part with bright arterial blood, which appears to exercise a very beneficial effect upon the disease.—[Ed.]

* * * * *

Tropical Medicine.—The spread of disease by insects, such as mosquitoes, flies, fleas, bugs, and other animal parasites, constitutes the chief contribution of tropical pathologists to scientific medicine. At the present moment malaria, filaria, and yellow fever are known to be conveyed by the bites of mosquitoes. Of these three scourges, yellow fever is the latest in which communicability by mosquitoes has been absolutely proved ; the work of the United States Yellow Fever Commission in Cuba settled the question of the way yellow fever is conveyed, by a series of thorough and elaborate experiments of high scientific value.

The exact method of the conveyance of plague has not yet been decided, although the appearance of the disease amongst rats would seem coincident with the development of plague in human beings. How infection is conveyed from the rat to man is still, however, a debatable point. During the year plague has continued to rage in India, and in the Punjab the disease assumed a virulence unsurpassed since 1896, when the disease appeared in Bombay. Plague prevailed in Egypt during the hot weather, but as the winter advanced it wholly disappeared. In Cape Colony plague continued to appear in Port Elizabeth, long after all other parts of the surrounding districts were free from the disease. At no time, however, was the outbreak severe, and although infected rats are still being found in Port Elizabeth, no case of plague was reported during the closing months of 1902. The disease continues in Mauritius with marked persistency, although the death-rate from it is low. Ever since 1894 Hong Kong has had plague, but during 1902 the number of cases reported was under 600.

Cholera prevailed in Egypt during the hot weather of 1902, and at one period amounted to a severe epidemic in both Lower and Upper Egypt ; with the advance of the autumn, however, the outbreak almost wholly subsided.

Of all epidemics, however, the most serious and most mysterious has been the wave of sleeping sickness which has spread over

Central Africa. Until a year or two ago sleeping sickness was confined to the West Coast of Africa, but recently the disease spread along the Congo and, crossing the watershed between that river and the upper reaches of the Nile, advanced along the shores of the Victoria Nyanza and Uganda. In many districts it attacked half the population, and everyone attacked died. Unless the epidemic is stayed, the valley of the Nile and Eastern littoral of Africa are threatened with one of the most loathsome and deadly diseases which ever attacked mankind.—[J. C.]

* * * * *

Insanity.—During the past year much useful work has been done in the field of clinical psychiatry. A large proportion of this work has consisted of researches concerning the bodily symptoms of mental disease, *e.g.*, alterations of the blood, pulse, pupils, cerebro-spinal fluid, urine, dermal appendages, etc. Abstracts of the resulting publications will be found under the headings, "Insanity," "Paralysis," "Periodical Insanity," etc.

A careful investigation of the sense of smell in general paralysis goes far to settle a point which has been in dispute since Voisin many years ago asserted that anosmia, complete or incomplete, was one of the earliest and most constant symptoms. A comparative study of memory is also a valuable diagnostic contribution. (See "Paralysis.") Several authors describe cases illustrative of Kraepelin's dementia præcox (precocious dementia), a form corresponding roughly with Clouston's adolescent insanity, but including cases, previously difficult to classify satisfactorily, in which the age of adolescence has been passed some years—occasionally many years. (See "Dementia Præcox.")

Mental out-patient departments have been established for some time in several British general hospitals, and a laudable movement has been recently set on foot, or revived, to promote the reception into general hospitals as in-patients of the poorer class of sufferers from incipient mental disease. (See "Insanity.")

Some good results have been obtained with codeine and other opiates in certain forms of melancholia; with hyoscine and the bromides in the early stages of mania; and with antistreptococcus serum and quinine in puerperal insanity. (See under those headings). These successes, though comparatively few, are sufficient to encourage the trial of the same remedial measures in similar cases.—[J. S.]

* * * * *

Dermatology.—There are not very many general advances to record in regard to the treatment of the diseases of the skin. Much attention has been devoted to the new methods of photo-therapy, which are referred to fully elsewhere.

At the Manchester meeting of the British Medical Association Professor Gilchrist, of Baltimore, gave an admirable demonstration on the disease now known as blasto-mycosis. This is a dermatitis produced by a fungus, which seems to combine the characters of the yeasts and moulds, for in the tissues it seems to spread by budding, while mould-like cultures are developed in the test tube. These cases have previously been regarded as cases of tuberculous or of specific ulceration ; and confusion with the latter is all the easier because large—very large—doses of iodide of potassium are generally of use in the treatment.—[N. W.]

* * * * *

Rheumatism.—The etiology of acute rheumatism still forms one of the most interesting debating-grounds of pathology. The microbial theory is the most popular at present, but can hardly be said to have improved its position during the past year. The arguments in favour of the malady being a specific infection are, however, very cogent, and Allaria has recently brought forward examples of its contagious transmission through its throat manifestations. A tempting theory has been based upon the discovery of pus-cocci, namely, that acute rheumatism is a mild form of pyæmia, the result of the action of attenuated micro-organisms which, if fully virulent, would produce the graver disease. The analogies between the two diseases are indeed marked, but in the light of recent researches I am not inclined to regard the theory as so completely explanatory as I did in my paper before the Clinical Society a few years back. In the light of modern research there is much to be said for the view of Triboulet and Coyon, according to whom the cause of acute rheumatism, though definite, is still uncertain, while the various micro-organisms are the originators only of its complications. To substantiate this theory it will be necessary to demonstrate the association of the various microbes with definite variations in the symptomatology—if it were proved, for instance, that pus-cocci were found in cases wherein joint troubles suggesting pyæmia predominated. It is true, as Triboulet has pointed out, that the

appearance of heart and other complications some time after the fever and joint swellings have subsided, suggests a secondary infection; but it is very probable that implication of the heart is, as a rule, at first unrecognizable clinically, and it certainly is not easily detected till the valves are implicated. Nor is the theory easily applied to the detached and irregular "rheumatic cycle" so often seen in children; still, as a working hypothesis, it fits in better with ascertained facts than those which attribute specificity to the individual micro-organisms. Chemical theories as to the etiology of acute rheumatism are at present somewhat in abeyance, and it seems probable that the chemical changes found in the disease are of secondary rather than primary importance. Some authors, in their anxiety to formulate a complete and systematic scheme of the pathology of rheumatism, invoke the aid of personal diathesis, idiosyncrasy, or predisposition; it need hardly be pointed out that such assumptions merely re-state the problem without helping on its solution.

The relation of *throat affections* to the disease still continues to attract considerable attention. There seems some reason to believe that when the tonsillar inflammation is slight, *i.e.*, when invasion is permitted with but little resistance, the attack of rheumatism which follows is more severe, and *vice versa*. Statistics as to the relative frequency and virulence of rheumatism in patients whose tonsils have been removed would be of much value in this connection.

The term *chronic rheumatism* is used to include a number of probably unrelated affections which advancing knowledge may help us to differentiate; the expression will then be limited to those forms which are definitely associated with or consequent upon acute rheumatism. The principal interest of the subject at present is as regards *treatment*. The introduction of hot-air baths, which were at first hailed by many as a panacea, has failed to justify the eulogies of its early supporters. They appear to be of some use when applied locally, and especially when combined with active and passive movements and massage. In these conditions moderate force may be used to break down the adhesions which are particularly found in connection with the capsule. The Aix method of douche massage is sometimes of value, and douching with hot carbonic acid gas has many supporters. A large number of patients undoubtedly do well at various watering-places where there are mineral springs; in his extremely thoughtful and unprejudiced

paper (see under "Rheumatism."). Wick doubts if there is any particular virtue in the different kinds of baths apart from their mechanical and thermal effects; it is nevertheless the fact that, as he points out, some cases will do well at one especial spa after ineffectual resorts to many others. But the best results are those obtained in cases which are really gouty, or the remains of an incompletely resolved acute rheumatism; some chronic rheumatism is very intractable. Prophylaxis is hence of the greatest importance, and the "re-mineralisation" method of Gaube and the "alkalisation" procedure of Dalché and Bardet are worthy of mention.—[B. A.]

* * * * *

Arthritis.—The occurrence of arthritis, both acute and chronic, as the result of infective processes is well known; it may be seen in connection with typhoid, with scarlet fever, with influenza, and with various other acute specific diseases, as well as in cystitis, rectal inflammation, and many other septic conditions. Its chief importance derives from the closeness with which it may simulate acute rheumatism, a closeness which certainly tends to support the theory of an infective origin for the latter. As a rule, however, the diagnosis is not difficult. It is interesting to note that in the case of bronchiectatic origin recorded by H. E. Symes-Thompson, the more acute symptoms yielded to salicylates. The "bacillary pseudo-rheumatism" described by Poncet and Maillard, does not appear to have been recognized in England. I am inclined to believe, though I have no statistics at present available, that arthritis is not an infrequent complication of the third stage of phthisis, in which it may be due to the absorption of septic material from the cavities, but I am quite unable to confirm Reilly's observation that 94 per cent of phthisical patients have a history of rheumatism.

In regard to arthritis deformans (rheumatoid arthritis), we are still far from a full understanding of its etiology. The tendency of modern investigation is to render it apparent that more than one affection is included under the various names which have from time to time been used for arthritis deformans; we have hardly ceased to speak of "rheumatic gout," and now there is a just consensus of opinion against "rheumatoid arthritis." It seems obvious that the condition discovered by Still in children, interesting and important as it is, is not

arthritis deformans, but a comparatively acute infective process with marked circum-articular manifestations, but little implication of the joints proper, and especially of the cartilages. The disease as it occurs in adults is seen in two distinct varieties, the fusiform and the nodular. The etiology of the fusiform variety of arthritis deformans is still uncertain, but the balance of evidence still seems to me to incline to the view that the secret is to be found in the nervous system. The nodular variety occurs in older patients, and is evidently a dystrophy. There is no need to assume that it is of nervous origin ; it may be merely the normal expression of articular senility, leading to irregular and unsuccessful attempts at compensation. The prospects of improvement under treatment in the nodular form are very slight. The prognosis in the fusiform, when occurring in old subjects is, however, by no means hopeless. I have seen some remarkable recoveries as the result of the combination of climate and efficient douche-massage with the sulphur waters of Helwan in Egypt. The health resorts of that country are strongly to be recommended for the winter quarters of sufferers from arthritis deformans.—[B. A.]

* * * * *

Gout.—The vast amount of experimental work which has recently been recorded cannot be said to throw any brilliant new light on the etiology of gout. It is true that various observers claim to have produced gouty nodules in birds of which the kidneys had been destroyed or the ureters ligatured. As the normal function of the kidneys of these animals is to excrete uric acid, it is hardly to be wondered at that an accumulation of this substance in the tissues results. But uric acid in birds corresponds as an excrement to the urea of mammals, and in the urine of the latter is excreted but in small amount. It seems to me, therefore, that the results obtained in these experiments cannot be transferred *en bloc* to human pathology, or used to explain the etiology of gout. Of much more value is the work of Freudweiler and his followers upon the fate of sodium biurate when introduced into the tissues. It has led him to the view that the gouty deposit is the result and not the cause of the acute joint symptoms of the disease. Instead of presupposing a local necrosis, he holds that the excess of uric acid in circulation leads to local inflammations which in their turn cause the deposition of the characteristic crystals. Various

other views will be found summarized in the article on "Gout" (*q.v.*). One author regards it as a neurosis, while another attributes it to hepatic inadequacy; the widest discrepancy is found between the statements of different observers upon such apparently easily soluble points as the amount of uric acid in the blood, the alkalescence of the latter, and the quantity of the former excreted. The experiments which have been made upon the metabolism of gouty subjects all fail to afford any rational basis for the therapeutic use of colchicum; yet it is generally found by unprejudiced observers to be the physician's sheet-anchor, at any rate in the acute stage. As regards *treatment*, much advocacy is published of the use of prussic acid and its derivatives, especially chinotropin. Piperazine and lysidin are now generally discredited; it remains to be seen whether the new drugs, which are also recommended on purely theoretical grounds, will have a longer lease of popularity. As a matter of fact our knowledge as to the pathology of gout is so uncertain, that purely empirical remedies have hitherto been more successful than the specious products of rash theorisation.—[B. A.]

* * * * *

The Nose.—The interest aroused during the last few years in the study and treatment of diseases of the nose and their accessory cavities shows no signs of abatement. On the contrary, the number of workers seems to increase from year to year, and the literature pertaining to the subject grows apace. Opinions gleaned from a ripening experience are becoming gradually crystallised, and definite lines of treatment are now being laid down with some assurance of authority.

The relationship of accessory sinus disease to atrophic rhinitis (ozæna) still causes commotion in the rhinological camp. Prof. Grünwald (*Brit. Med. Jour.* Aug. 30, 1902), maintains the existence of focal disease in all cases of ozæna, and insists upon the most thorough and painstaking examination to ascertain the sinus or sinuses involved before commencing treatment. Although supported by many competent observers, the general feeling amongst rhinologists is that even if focal disease is found in some cases of ozæna, yet in the great majority the sinuses are healthy. No definite theory can as yet be advanced which will explain all cases. Treatment by means of electrolysis claims many adherents, and the results obtained seem to equal, if not to surpass, those obtained by other methods. The idea of

injecting paraffin under the mucosa of the atrophied inferior turbinal in order to build up an artificial cushion, and so enable the patient to blow his nose more easily, has been advocated by R. Lake, and Brindel of Bourdeaux.

The relationship of morbid conditions of the upper respiratory tract to spasmodic asthma, is another question about which opinions differ very widely. Gross intranasal lesions, whether they be regarded as predisposing causes to attacks of asthma or as the consequences of repeated attacks, demand careful consideration and treatment. The undoubted fact that cases of asthma are much benefited, and even at times cured, by intranasal surgical interference, lends some weight at any rate to the interdependence of the one lesion upon the other. The remarkable series of observations made by Dr. Francis, of Brisbane, and communicated to the Clinical Society of London (*Lancet*, Oct. 18, 1902), has again aroused interest in this subject. Out of a total of 402 cases of asthma treated by Dr. Francis, the nose was apparently normal in 346 cases. Polypi were found in 32 cases, and other gross intranasal lesions in 24 cases. Of these 346 cases only 8 obtained no relief from intranasal treatment, which consisted in cauterising with the galvano-cautery the mucous membrane of the septum nasi. The treatment, although purely empirical, demands in the light of the above statistics a further careful and extended trial.

The surgery of the accessory sinuses retains a prominent hold in the affections of all rhinologists. The number of operations advocated for the cure of accessory sinus suppuration is great. The gleaning of a good idea from one method, and another idea from another method, has resulted in improving the methods of technique and the consequent success of the operation. In cases of frontal sinus suppuration, many good operators prefer to remove the whole anterior wall of the sinus where the sinus is not unduly large. The amount of deformity which results, even in cases where the sinus is fairly large, is by no means so very great, and in all probability extended experience with the use of paraffin as a subcutaneous injection will prove it to be of value in relieving any post-operative deformity which may exist.

The value of paraffin injections as a means of relieving such deformities as saddle-nose is undoubted. Many observations upon this subject have been made during the past year, both in this country and abroad, and many striking results have been obtained.

The question of intra-nasal surgical interference in cases of chronic non-suppurative middle-ear disease, formed the subject of an important discussion at the Manchester meeting of the British Medical Association. The general feeling was that in cases of genuine oto-sclerosis intranasal surgical operations were useless if not harmful, so far as any improvement in hearing was concerned, whereas in hypertrophic catarrh of the middle ear, where improvement in hearing was produced by inflation in one or other of its forms, the clearing away of obstructive lesions within the nasal passages was likely to be attended by marked benefit.—[W. M.]

* * * * *

Venereal Diseases.—During the last few years much careful work has been done in regard to the bacteriology of *gonorrhœa*. More perfect technique in culture methods has shown that there are few, if any, parts of the body in which the micrococcus will not grow. On a later page will be found a report by Young of successful cultivations of the gonococcus from cases of arthritis, subcutaneous abscess, acute and chronic cystitis, pyonephrosis, and peritonitis. Bertrand has reported two cases in which the gonococcus was demonstrated in the blood in a general gonorrhœal infection. The prostate appears to be a specially dangerous nidus in gonorrhœa, for a prostatic abscess was present in four cases out of five of fatal pyæmia following gonorrhœa reported by Ullmann. A generalized infection takes place in gonorrhœa, according to Hamilton, in from 1·5 to 2·8 per cent of cases, a greater number of cases occurring in males than in females. This author has used antistreptococcic serum in general infection from gonorrhœa, with some benefit.

Janet, in an interesting paper, gives a full account of the many pockets and diverticulæ which may occur in the urethra, and which form hiding places for bacteria, and thus tend to prolong indefinitely chronic urethral inflammations.

There has been little, if any, advance in the treatment of *acute gonorrhœa* during the past year. The attempt to lessen the irritation and increase the penetrating power of gonococcides, by combining them with organic instead of inorganic bodies, was discussed in the *Medical Annual* for 1901. A group of such bodies has now been produced, and this year another has been added under the name of Albargin. Less irritation certainly does seem to attend their use, but the increased power of penetra-

tion still remains to be proved in clinical work. A remark by Dr. Christian, in reviewing the results during the past ten years at the genito-urinary dispensary of the University of Pennsylvania, may seem somewhat pessimistic, but one feels that it does not fall far short of the truth when applied to hospital practice. The more scientific treatment, he says, has lessened the personal discomfort of the patients, but little, if any, advance has been made in shortening the actual duration of the disease. The results obtained in chronic urethritis are, however, most gratifying.

There can be little doubt that the causative factor in *syphilis* is a specific organism, yet, like many other infections, the microbe is not definitely proved. Doubt has been cast by Alvarez, Janet, and Matterstock upon the value of Lustgarten's bacillus (1884) as the etiological factor in syphilis. Van Niessen's bacillus has more recently been accepted by some authorities. On a later page will be found an extract of a series of observations on twenty-two cases of syphilis by Joseph and Piorkowski. The bacillus they describe was obtained by sowing syphilitic spermatic fluid on placental tissue, and has many of the characteristics one would expect the organism of syphilis to possess, such as paucity of growth on placental tissue from syphilitic women, and negative results in animal experiments. From their description of the bacillus, it somewhat resembles that of Van Niessen. Fürgens, who discussed this paper, expressed his opinion that the organism of syphilis had several forms according to its state of development, a coccal form, a bacillary form, and a spore form. A new parasite has also been observed by M. Stassano in syphilitic patients, in the form of motile bodies, apparently flagellated infusoria belonging to the monad group.

Dr. Federn, of Vienna, in expressing his opinion that there is no fundamental difference between the sore which remains purely local and that which is followed by characteristic manifestations of syphilis, would have us return to the "unitist theory" of primary venereal sores. His explanation of the absence of constitutional effects in soft sore is novel, but not convincing. In the soft sore, he says, the pyogenic organisms overwhelm the syphilitic bacilli, and destroy them so that no general infection takes place.

Professor Tschish rightly insists upon the necessity of early diagnosis in cases of cerebral syphilis, so that treatment may

be adopted before grave and incurable lesions of the cerebral tissues have developed. Headache and insomnia are important early symptoms, and he regards arterio-sclerotic changes in the anterior temporal artery, which he has observed in all cases of incipient cerebral syphilis, as the most valuable sign in these cases.

The relation of syphilis to Life Assurance is a subject of far-reaching importance, and an extract of a paper by Runeberg which deals with the question will be found on a later page.

Recent evidence does not tend to support the use of anti-syphilitic serum (see *Medical Annual*, 1902), although it must be confessed that the number of cases in which the treatment has been used is not as yet great. Gravagna condemns it from an experience of two cases.

Various modifications of the mercurial treatment have been suggested and used. Welander's method of hanging a piece of flannel smeared with mercurial ointment about the neck of the syphilitic patient is of course merely an application of the well-known treatment of congenital syphilis by rubbing mercurial ointment on the inside of the binder of the infant.—[J. W. T. W.]

* * * * *

General Surgery.—There is no epoch-making advance to be chronicled in the department of general surgery, but there has been steady progress along old lines in several departments.

In cancer of the breast it is becoming more widely recognized that early and free removal gives very good results. If one cannot speak of definite or absolute "cure" in these cases, one can quite easily get a two years' or three years' freedom from recurrence in a great many, and in a fair proportion four or five years may be passed in comfort, with a less painful death from internal deposits, in place of the foul ulcerating surface which often results from non-removal. There is not absolute agreement as to the details of a free removal; but in general most surgeons would agree that wide removal of the skin, with more or less of the pectoralis major muscle, and removal of the contents of the axilla, is the least that can be done. There is also some advantage to be gained by division of the pectoralis minor, for there is no doubt that if the axilla can be properly cleared without this division, it can be more easily and thoroughly cleared with it, and there are no disadvantages in so doing.

Most surgeons will also admit that removal of the supra-clavicular glands, except in very exceptional cases, is a useless proceeding, and the suggested opening of the anterior mediastinum is to be strongly condemned, for if the disease has reached so far the bones are doubtless affected. It will be well if Mr. Marmaduke Sheild's remark on the propriety of operating *quickly* in these cases is noted; the more rapidly an operation is done (other things being equal), the better for the patient.

Reindeer tendon threads are, from personal experience, a new suture well worthy of trial. They are stronger than catgut, less expensive than kangaroo tendon, and if prepared as directed, have so far given rise to no septic infection. They do admirably for suturing the abdominal wall in the radical cure of hernia.

In the surgery of the chest, some papers have been published showing the favourable results that may be obtained from interfering surgically in wounds of the diaphragm and of the heart. In diseases of the lung it is becoming more evident that the best results are obtained in abscesses and gangrene of the lung. In tuberculous and bronchiectatic cavities the results are not so favourable, and in the majority of cases the patient will receive little or no benefit from surgical interference, since these two lesions are seldom well localised.

Sir Frederick Treves has reported successful cases of operation on varicose aneurysm and aneurysmal varix. These conditions have become more frequent since the use of small calibred bullets in warfare. Mr. C. A. Ballance reports a case of operation on aneurysm of the innominate artery, and suggests that treatment pursued to render the blood more coagulable is a mistake when an aneurysm is operable.

Pearce Gould speaks well of Trendelenburg's operation in varicose veins of the lower extremity; and there are several interesting cases of successful suture of arteries recorded.—[P. L.]

* * * * *

Gynæcology.—In reviewing the recent progress of gynæcology it must be premised that very few epoch-making discoveries have been made. The record consists mainly in steady pathological work, and in the gradual improvement of the technique of various operative procedures. Perhaps the most important matter to chronicle is the establishment beyond dispute of the occurrence of the ovarian form of extra-uterine pregnancy,

of which some half-dozen authentic cases are now on record. The chief merit for this important advance is undoubtedly due to Mdlle. Catharine van Tusschenbroek, of Amsterdam, whose beautiful preparations were the first to demonstrate an ovarian pregnancy beyond the possibility of doubt. As regards extra-uterine pregnancy in general, the trend of medical opinion is undoubtedly in the direction of early operation, as affording the best chance of safety for the patient. Champney's careful work on the natural history of these cases when left alone, referred to elsewhere, demonstrates the fact that many cases *can* be left alone with safety; but there must always be a difficulty in predicting, in any given case, how it will turn out if left to itself; operation does not appreciably increase the mortality even of the otherwise safe cases; and delay in some cases must necessarily lead to the sacrifice of some lives that might otherwise have been saved. Hence the safest rule is to operate in every case unless there are very clear and satisfactory grounds for delay.

The pathology of solid ovarian tumours has been enriched by a valuable contribution by Fairbairn on fibroid tumours of the ovary. The surgery of ovarian neoplasms is in a settled condition, having been raised out of the domain of contentious subjects. The same cannot be said of the surgery of uterine fibro-myomata, and the extreme conservative school has still some representatives in relation to these tumours. Differences of opinion are, however, being bridged over, largely by the increasing favour with which conservative myomectomy is being received. As long as there was no middle course between leaving a case alone and removing the whole uterus, it was natural that the radical operation should be viewed with a considerable measure of disfavour, especially in view of the relatively high mortality which at first prevailed. At the present time the mortality of hysterectomy for myoma hardly amounts to 5 per cent in the hands of skilled operators; and conservative myomectomy is being more largely practised. This also had at first a high mortality, but the perseverance of many surgeons in the improvement of the technique of the operation has found its reward. In the article ("Fibro-myomata") we have endeavoured to formulate with some degree of precision the various procedures to be adopted in dealing with different types of myomata; and it is to be hoped that in the near future the surgical indications in the treatment of these tumours will

be as satisfactorily established as is now the case with ovarian growths.

We may note with satisfaction the tendency to conservative surgery in another department, that of inflammatory conditions of the uterine appendages. It is not many years ago that operative treatment for these conditions was sternly denounced by some leading gynæcologists; and the denunciation even extended to suppurative conditions. This was, no doubt, a result of the very proper reaction against unnecessary removal of practically healthy appendages for neurotic conditions. It is now recognized that, though inflammatory conditions of the more chronic type may not threaten life, they seriously impair health, and involve a state of invalidism which may continue for years. It is admitted that many women, especially those of the working class, cannot be condemned to the loss of livelihood which results, and that operations for their speedy relief are justified on every ground. At the same time there is a growing tendency to save even portions of organs when there is a chance that resection of the diseased parts may preserve normal functions, and brilliant successes have been reported in this direction.

In the treatment of uterine displacements the indiscriminate use of pessaries is on the wane. It is possible that their abuse in former years has led to extreme reaction on the part of some gynæcologists. That they have an important place must, however, be admitted. Many displacements can be cured by their judicious employment; others can be relieved in cases where more radical treatment is contra-indicated. But in an increasing number of cases it is found that plastic operations (including in this term various procedures for keeping the uterus in its normal position) can be safely and successfully carried out, thus relieving the patient at once and finally from the necessity of wearing a pessary indefinitely, and from the constant examinations and manipulations entailed thereby. In the case of unmarried women this point is obviously of no little importance, nor can the drawbacks and risks incidental to the wearing of pessaries be entirely ignored. Broadly speaking, the test of all operative procedures, for these and for other conditions, must be the ultimate result; and those plans must eventually be accepted that lead to the most complete cure in the shortest time and at the smallest risk.

In the matter of malignant disease of the uterus there is little to chronicle. The etiology of the condition is still unsolved,

and at present the activity of workers is in a great measure directed to the consideration of the methods of operation that promise the best ultimate result. Extensive and radical dissections are practised by not a few, but it is as yet too early to pronounce an opinion on their real value.

There is still need of much pathological work in many departments of gynæcology. Besides the subjects already spoken of, we may specially mention the group of conditions comprised under endometritis and adenomatous disease of the cervix (the so-called "erosions"). The pathology of some vulvar conditions, such as kraurosis and vulvitis pruriginosa, also requires further elucidation.

In the department of obstetrics there is practically nothing new to write. The subject of eclampsia is still occupying a great deal of attention, but we are far from a satisfactory understanding of its causes and nature, and the multiplicity of the modes of treatment advocated speaks eloquently as to the unreliability of any particular line of treatment. We have referred to some recent work on this subject under the appropriate heading. There is nothing new to call attention to in the treatment of contracted pelvis; there appears to be a lull in the advocacy of symphysiotomy. For the rest, the treatment of the complications of labour may be said to rest now on fairly well-established lines.—[A. E. G.]

* * * * *

Rectal Surgery.—A review of the work done during the past year in the field of rectal surgery does not disclose any novel proceeding of value. It is true that new forms of electricity—the high-frequency currents in particular—have been applied with fresh energy in this particular branch of surgery. The successes obtained, however, do not warrant us in claiming now, any more than previously, that electricity can effect cures in rectal disease which are not more simply and more certainly obtained by the knife or by the ligature. It is particularly in the treatment of hæmorrhoids that electricity has been widely tried, and we can discover no justification yet for regarding it as anything but an uncertain measure. As the abstracts in the "Dictionary" show, the rest of the rectal work of the year mainly tends to corroborate the principles and proceedings now generally accepted in this department of surgery.—[H. W. A.]

* * * * *

URINARY SURGERY.—The lines along which this section has distinctly progressed during the past year are mainly three in number :—

(1,) The operative treatment of chronic Bright's disease.

(2,) The radical cure by operation of the enlarged senile prostate.

(3,) The more exact radiography of stone in the urinary channels (kidney, ureter, bladder, and prostate).

As regards the attempt to cure chronic Bright's disease by operation, it may be said that although it is in the experimental stage, evidences are rapidly accumulating which point to the reduction of the amount of albumin and casts, and the amelioration of the symptoms of chronic nephritis by decapsulation of both kidneys. The method which Edebohls (the innovator) employs is given in the body of the book (see "Nephritis").

Surgical opinion upon the radical cure of the enlarged senile prostate has swung sharply back to the employment either of suprapubic enucleation (the old MacGill-Belfield-Atkinson operation), or of the perinæal enucleation (the Dittel-Nicol-Goodfellow operation). Opinions are still divided as to whether it is wise to enter the capsule from above or from below, but probably the perinæal route will be used much more in the future than the suprapubic method. The subject is more fully discussed under the heading of "Prostate."

Radiography is assuming a very high position in the diagnosis and treatment of stone in the urinary channels. Probably few surgeons will care to operate on the kidney or ureter without a preliminary skiagraph of the renal regions. The subject is briefly alluded to and illustrated under the head of "Stone."—[E. H. F.]

* * * * *

ABDOMINAL SURGERY.—*Surgery of the Appendix.*—Cases of cæcal retention and obstruction, and of perityphlitis, continue to be called appendicitis. It is a source of great confusion, for the former generally yield to medical treatment, whereas in true appendicitis there is no evidence that medical treatment has any influence whatever on the course of the disease. Also in true appendicitis, except in the milder cases, prognosis is utterly uncertain. From these propositions it follows that surgical measures at an early stage form the only safe procedure, as in the case of strangulated hernia. In all acute cases, therefore,

as soon as the diagnosis can be made, it is safer to operate than to wait, and it is insisted by American surgeons, who have shown themselves the best pioneers on the subject, that an operation within twenty-four hours of the commencement of an acute attack, before any septic infection has had time to get beyond the appendix, is, in view of the absolutely uncertain prognosis, the safest of all procedures.

Gastric perforation after ulceration has become a frequent cause for operation, and when early the results of closing the ulcer are very good. Surgeons have reported as many as five successful cases running. Generally it is best not to try and excise the ulcer, but to tuck in the edges by a double row of Lembert's sutures ; the danger of excision is that the sutures will yield in the inflamed wall. The cases are especially difficult : (*a*) When there is a very marked zone of induration around. The hole has then been plugged by a strip of omentum. Especially in the region of the pylorus the margins are apt to be most rigid. It may then be best to do a gastro-enterostomy, and place a plug of iodoform gauze in contact with the ulcer. (*b*) The most difficult of all are the ulcers near the cardiac end underneath ribs depressed by stays. It is almost impossible to get at such an ulcer so as to suture it, and the only way is to insert a long strip of gauze partly into the ulcer and partly between the stomach and the ribs. When peritonitis has become diffused it is necessary to swill or wipe out the abdomen, often inserting a drain into the pelvis through a hypogastric opening. A pint or more of gastric fluid may be found in the pelvis, while the rest of the abdomen is fairly dry, fluid having found its way downwards in front of the kidneys. In other cases the fluid becomes encysted either in front or behind the stomach, and forms a perigastric or subphrenic abscess.

Duodenal ulceration and perforation cannot be distinguished previous to the operation, from gastric perforation. The latter generally occurs in anæmic young women, the former in men about forty, often without antecedents of importance. This also when taken in time is now successfully treated. If the ulcer cannot be closed, a gastro-jejunostomy should be done, and the ulcer and neighbourhood plugged with gauze.

Gastric hæmorrhage, or gastrorrhagia, has also been relieved surgically. There does not seem much opening for an immediate operation owing to the weakness of the patient and the difficulty and length of time required to find the bleeding point. If this

be done, an incision is made and the inner wall of the stomach everted through the opening by a finger in the lesser omental cavity. But the more generally successful method seems to be to allow the patient to recover from the attack sufficiently and then to do a gastro-enterostomy before hæmorrhage recurs. The ulceration and hæmorrhage are provoked by decomposition of the gastric contents, which is prevented by the anastomosis.

Pyloric stenosis, when simple, is usually relieved by pyloroplasty, especially when the stricture is divided well into the duodenum, by which relapses are avoided. The stretching method of Loreta has fallen into disuse. Gastro-jejunostomy is required when there is marked inflammation around the pylorus and great dilatation, and many cases are completely cured. Indeed, it is a most successful operation in simple cases; and in a number diagnosed as malignant, and as the result of the anastomosis by giving rest to the pyloric ulceration, the suspected tumour has shrunk.

Malignant disease of the stomach, one of the most frequent of cancers, has not yet been treated to any great extent owing to the difficulties of an early diagnosis. Neither the examination of the gastric contents nor the presence of a tumour are trustworthy as distinguishing from chronic ulceration, and changes in these respects generally appear too late. It is necessary to explore by operation in all doubtful cases. Even then a tumour with some enlargement of the glands may prove ultimately to be only inflammatory, and shrink after gastro-enterostomy. Of the relatively few cases suitable for excision, gastrectomy, or the removal, not only of the pyloric end, but of the larger part of the stomach, is gradually superseding pylorectomy. There is no marked difference as to shock; in pylorectomy the part of the stomach left does not seem serviceable, and recurrence is very often favoured. Moreover, the union of the duodenum with the small cardiac end is easier than with the wider part. The removal of enlarged glands, especially along the lesser curvature and the course of the gastric artery from the cœliac axis, does not appear practically to have prevented recurrence. The best results hitherto show on the average the prolongation of life for one year beyond average duration of life in non-operated cases. Gastro-enterostomy is not followed by any great good in cases truly cancerous, and is hardly worth advising unless the symptoms of pyloric stenosis are very marked, when a prolongation of life of three months or six months from the time of the operation may be anticipated.

The surgical treatment of ascites, by inducing the formation of vascular adhesions and an anastomosis between the vessels of the omentum and other viscera and the abdominal parieties, is a subject upon which reports vary. The anastomosis is certainly established by fixing the omentum in the epigastric wound, large veins being seen in the abdominal wall during life, and dilated vessels in the adhesions *post-mortem*. It is not a method suitable for very late cases; one should rest content in such with drainage. But in many the need of constant tapping is done away with and the patient's health much improved. But until the exact pathology of ascites is better understood one cannot define the cases in which a diversion of some of the venous blood which would otherwise pass through the liver will prevent the rapid re-accumulation of peritoneal fluid.

Hepatopexy, or the fixation of a prolapsed liver, has been carried out by Treves in one of the forms of Glénard's disease. The recorded cases show frequently some biliary complication.—[W. G. S.]

* * * * *

Surgery of Brain and Spine.—In regard to cranial injury, the pendulum of opinion has swung a degree further, perhaps, towards the side of earlier and more radical interference on the part of surgery. It has become a cardinal rule never to close a wound on the scalp without a searching examination of the skull beneath and about. In the presence of brain symptoms warranting interference, trephining should be done at the site of injury, even if small, as it affords the best chance of reaching and relieving the trouble within in the majority of cases. The presence of damage sometimes occurring at the opposite cranial diameter should always be considered. Where no damage can be found, indications for interference must be definite, and not be contra-indicated by existing conditions. It is here that good judgment is so called for. A number of such cases, fortunately, are those of dural hæmorrhage, in which the signs are apt to be clear. Operations for other varieties of intracranial damage, without skull fracture, have not met with the success of those undertaken for this cause, and have proved of limited use.

The choice of time for operation, is after reaction from shock, except where increasing and grave pressure symptoms occur. It has been proposed to drain in basal fractures, especially of the middle and anterior fossæ, but the procedure has not received general sanction.

Brain abscess may arise from various causes. Over 40 per cent of all cases of brain abscess are secondary to disease of the middle ear. It has been recognized of recent years that "When the tympanic cavity has become the seat of chronic suppuration with ulceration of the mucous membrane extending into the antrum and mastoid cells, it becomes a standing menace to the safety of the patient," and should not be regarded as merely an inconvenience. It has been recently taught that in every case of middle-ear disease when cerebral symptoms develop, whether discharge has ceased or not, the skull should be opened.

Brain tumors.—At present scarcely more than one case in twenty of brain tumor is considered amenable to surgical interference, due to their situation, nature, and size. A few more are removable (possibly 10 per cent as determined by *post-mortem* observations), but the severity of the operation required for the majority would preclude recovery. Starr, in a table of 1100 cases, finds but 7 per cent were "probably removable." This is a very different attitude from that originally taken when it was first demonstrated that the skull could be opened, and the interior more or less explored. Hence at present, the outlook for the radical treatment of brain tumors is rather discouraging.

The operation of intracranial neurectomy, either as originally proposed by Hartley and Krause, or as modified to division of the ganglion branches with partial exsection, has constantly grown in favour for the treatment of the persistent intractable neuralgias affecting the fifth nerve. With constant perfection of technique and earlier operation, rather than later as a last resort when physical tone is lowered, our results will undoubtedly show even a greater brilliancy.

The value of the *X-ray photograph*, particularly in traumatic head surgery, is firmly established beyond question, and has become one of the essentials for the intelligent and best management of many cases of this class. It has at times proved of value in the localization of neoplasms, particularly when of denser structure and situated near the surface of the brain. It has served to very accurately differentiate such conditions as meningocele, encephalocele, and hydrencephalocele, and to determine the contour, continuity, structure, and thickness of the cranial bones.

In *Spinal Surgery* the progress of the year can best be studied by reference to the articles "Brain" and "Spine." The commonest cause for surgical interference is injury to

the cord and vertebræ. The result of cumulative experience and research has made for interference in the majority of the cases of fracture, in view of the high mortality (in the neighbourhood of 80 per cent) where it has not been attempted.

The remarkable case of suture of the spinal cord, after a complete crushing separation of the proximal and distal ends by ¾ of an inch, with partial and increasing restoration of function, reported by Stewart and Harte, must compel a reconsideration of our determination to abandon as hopeless certain of these cases. At least it reopens the important question of operations in such cases.

In the operative treatment of *Spina bifida*, the use of injections (Morton's fluid, etc.) has been distinctly discouraged, particularly as a method applicable to the generality of cases, while more rational modifications of the original method have been proposed and used, such as the injection of iodized liquid vaseline, which with the child in the prone position floats to the top of the sac, and is so prevented from entering the spinal canal. The treatment by excision of the sac in tumours of any size has come to the fore as promoting the best results.

Lumbar puncture as a therapeutic measure has been employed to a less extent than in former years. Spinal cocainization, while of utility in certain selected cases, has proved, as a routine method of producing anæsthesia, to be followed by a larger mortality than that ascribable to either chloroform or ether.—[R. A., W. S. S.]

* * * * *

Surgery of the Chest.—In empyema the practice of washing out the cavity is a proceeding to which considerable risk is attached; in old-standing cases where the collapsed lung is bound down by thickened pleura the latter has been dissected off, but it is not certain that the proceeding is of much value. In resecting ribs in these chronic cases, the resection should be planned according to the position, size, and shape of the cavity.

The prognosis of operation for gangrene and abscess of the lung is most favourable in acute and subacute cases; exploratory puncture should be omitted when possible, and pneumothorax avoided by suitable procedure. The danger of pneumothorax is proportionate to the suddenness of incidence.

Forty-four cases of heart-wound surgically treated have been recorded, and nine cases of penetrating wound have been saved

by suture ; unless a patient is moribund an attempt should be made to deal with such wounds.

For gaining access to the pericardium for the removal of pus, or for puncture, Deguy advises a route from the angle between xiphisternum and ribs upwards and to the left ; the suggestion has a good deal to recommend it.

Thoracic resection for the removal of tumours has now been undertaken in a large number of cases ; the chief danger is sudden collapse of the lung ; Milton has devised what appears to be a satisfactory method of gaining access to the anterior mediastinum by splitting the sternum.—[K. M.]

* * * * *

Surgical Diseases of Children.—For tubercular adenitis some surgeons recommend intra-glandular injections in order to avoid a scar ; the glands break down under this treatment, and the softened contents are removed by the syringe. The steps of a systematic method of removing the whole of the cervical glands have been described by Mitchell.

A new method of obtaining a continent bladder in cases of extroversion has been devised by Subbotin, a sphincter being formed from part of the sphincter ani externus.

The satisfactory results of the radical cure of hernia in young children is generally acknowledged, and it is recognized that a very simple procedure is sufficient to ensure permanent cure.

The prognosis of the treatment of congenital dislocation of the hip is moderately good up to the age of four years ; after this age an anatomically good result is uncommon by the bloodless method : in a small number of children after this age open operation has proved satisfactory.

Taken as a whole, statistics appear to give support to the view that simple abdominal section is to be looked upon as a remedial measure in selected cases of tubercular peritonitis, in spite of some adverse opinions.

The results of operation for imperfectly descended testis have not as yet been sufficiently reported to admit of an exact estimate of its value. If the attachments of the organ do not admit of its being readily brought into the scrotum, it has been recommended that it should be returned to the abdomen rather than removed.—[K. M.]

* * * * *

Aural Surgery.—It cannot be said that anything very new has been added to our knowledge of aural disease during the past year. But a good deal has been done in elaborating the details of treatment, the principles of which have been before the profession for some years. These details, for the most part, deal with suppuration within the temporal bone, and its effects in the form of secondary infection within the skull and elsewhere. It is not yet generally advanced, but it seems to be the logical outcome of the principles now generally held by surgeons, that every suppuration of the middle ear, which cannot be arrested by careful cleansing and dressing of the cavity, should be treated by operation. The operation is difficult, it is true; but in the hands of experts it is safe, and except in tubercular cases it nearly always leads to permanent cessation of the discharge. There is far less risk to the facial nerve, the lateral sinus, and the brain, with the operation than without it; and if an insurance company will not take a life at all in which there is a discharge from the middle ear, or will only take it at a high premium, the risk to the patient cannot be described as trivial. The writer would plead for patience and thoroughness in carrying out the ordinary treatment of chronic suppurative middle-ear disease; but if this should finally fail, he would operate in every case in which, apart from the ear disease, the patient was in good health.

The extent to which operative interference in the nose is likely to improve hearing, seems to be a subject on which a good deal of difference of opinion exists, and on which a good deal of discussion may yet take place. When the obstruction is in the post-nasal space, all are agreed that operation should be undertaken in every case; but where the post-nasal space is neither primarily nor secondarily affected, many writers think operation on the further forward parts will do no good to the hearing, and should only be undertaken if the subjective discomfort is so great as to make it justifiable for the relief of the latter. Much should depend in a given case on the evidence before the surgeon for or against the nasal origin of the deafness. If the nasal origin can be established, and if nasal stenosis exist at the time of the observation, he will tend to operate; if the contrary be the case, and a sclerosis of the middle ear exist apart from any evident change in the nose, he will incline to leave matters alone.

For the treatment of deafness due to chronic non-suppurative middle ear inflammation—treatment apart from operations in

in the nose—little that is new has been recently suggested. Electrolysis applied to the Eustachian tube is recommended by some observers, and regarded as no better than the older method of dilatation with the bougie by others. The results seem temporary in many cases, and the method is not free from danger. The application of pneumo-massage by means of an electric motor seems to improve hearing in some cases, and to relieve tinnitus in many cases, but it is difficult to predict the result in any given case, and many observers think the benefit following the treatment only of a temporary character.—[J. K. L.]

* * * * *

Eye Diseases.—Though there has been no sensational discovery or striking advance during recent months in ophthalmic surgery, there has been steady progress. Attention should be called first to two remedies which seem likely to prove of great service. *Suprarenal extract* has been found to bring about the happiest results by its vaso-constrictor action in acute inflammatory conditions of the conjunctiva, cornea, and iris. And *dionin* is a remedy which gives relief in cases of deep-seated pain where cocaine is ineffective. In the treatment of *hypopyon ulcer* the use of the cautery, though of course by no means new, has been further pressed by several surgeons not only as a means of destroying the focus of infection and relieving pain, but as having some influence on the pus-forming process in the anterior chamber.

The extraction of steel fragments from the interior of the eye by aid of Haab's magnet has been successfully accomplished in many cases, and will probably be extensively practised in future.

Excision of the superior cervical ganglion for glaucoma must be considered as still on its trial. The good results obtained by it do not seem to have been always maintained.

The revival of the operation of *depression* as a substitute for extraction of cataract, in cases where the latter proceeding presents special difficulties, has been powerfully urged by H. Power, who points out that it has hitherto not been practised under modern antiseptic conditions, and has therefore scarcely had a fair trial.

In ophthalmic pathology the present state of our knowledge of the conditions which produce in the fundus oculi the phenomena hitherto classed under the name of "Embolism," has been well summarized by A. H. Thompson. The fact that these

phenomena are to be found sometimes in both eyes, is enough, of itself, to raise doubt whether embolism can always be the sole cause.—[E. H.]

* * * * *

Dental Surgery.—A new plastic cement filling, consisting of oxy-phosphate of copper, has been introduced. Though quite black, it is hard and less soluble in the oral fluids. Except for its black colour, it is far the best of its class, *i.e.*, hard-setting, temporary fillings.

In *Items of Interest*, July, 1902, Kirk, of Philadelphia, discusses a case of generalized dental erosion. By comparing crystals of solids obtained from the patient's saliva by dialysis with crystals of known substances, he concludes that this case was due to the action of lactic acid. Other cases he concludes are due to the solvent action of acid sodium phosphate or acid calcium phosphate. He, hence, correlates dental erosion with gout. These conclusions, if borne out, are of considerable importance.

Sydney Spokes publishes some excellent photo-micrographs of sections of teeth of rickety subjects, showing faulty enamel due to want of deposition and irregular deposition of the lime salts—fitting in with the theory which ascribes the bony phenomena of rickets to want of formation rather than to excess. —[J. G. T.]

DICTIONARY OF TREATMENT.

ABDOMEN (Surgery of).

Walter G. Spencer, M.S., M.B., F.R.C.S.

The *methods of intestinal suture* mostly practised are practically two, either a double row of fine sutures or Murphy's button. Both are successful, and it seems chiefly a matter of personal skill. The use of the Murphy's button has the advantage as regards rapidity; that of sutures, of greater adaptability to every possible requirement. When used high up in the bowel, *e.g.*, for gastro-enterostomy, the button is sometimes retained and requires a separate operation for its removal, especially now that its position can be discovered by the X-rays.

Intestinal injury, especially by bullets, is the subject of much debate. Broadly speaking, every pistol-bullet wound perforating the abdomen which is seen soon after its occurrence, in civil practice should be explored as soon as this can be done under proper surgical conditions. And when these conditions obtain,

whether in civil or military practice, the same probably applies to the case of rifle bullets, of whatever calibre and velocity. The experience of the South African war has shown that proper surgical conditions cannot be obtained in the field, and that therefore an expectant treatment is obligatory. Under it a certain number of cases recover, it has been argued, because, although the bullet has traversed the abdomen, the intestines and large vessels have escaped. But, whilst fully appreciating the number of cases which have recovered under an expectant treatment, it must be remembered that these have formed only a small proportion, not 30 per cent, of those shot, and among those not killed outright there were probably many whose lives might have been saved could they have been brought under good surgical conditions immediately after being wounded. Abdominal perforation by rifle bullets of large calibre is inevitably fatal unless treated surgically.

Abdominal contusions require very close observation, the bowel being easily cut across or other viscus ruptured, in such a way that prompt recourse to surgery can alone save life.

Perforation from typhoid fever treated expectantly is inevitably fatal. Of the cases operated upon about one in ten have recovered. Every case, therefore, should be submitted to operation. The only objection is the difficulty of diagnosing the occurrence of perforation ; now and again no perforation has been found although the symptoms of it were well marked. But the possibility of a mistake is not a valid objection to operation : the abdomen has been rapidly closed and the case has not been made worse thereby.

Intussusception is now rarely treated by rectal injection. Even in early cases complete reduction is often not obtained, the tumour merely disappearing under the palpating hand, to return later. The best results are obtained by operating at once, and, when recent, withdrawing the intussusceptum, which may then be fixed at some spot to the parietes to prevent a return. When the intussusceptum cannot be withdrawn resection should be done.

Surgery of the colon.—Carcinoma, whenever the diagnosis can be made at an early stage, is most successfully excised, the gut being either united end to end, or the distal end is closed and the proximal end implanted into an incision lower down in the gut. When there is intestinal obstruction with malignant disease too advanced for removal, a lateral anastomosis between the

gut, above and below the obstruction, may afford relief without inflicting upon the patient the trouble of a colotomy. When, however, colotomy cannot be avoided, it is essential that a spur should be formed by bringing the mesenteric attachment well outside the abdominal wound.

Chronic colitis is of obscure origin. When resistant to medical treatment, an anastomosis between the ileum and lower end of the colon seems to offer the best chance of relief. If this is not possible, then a right-sided colotomy may be done, and the bowel below frequently irrigated.

Simulation of abdominal disease by intrathoracic lesions.—Barnard[1] has collected six cases in which a morbid condition of the pleura or lung simulated general peritonitis, and Miss Walker published a case of pleuro-pneumonia with abdominal symptoms; vomiting, pain, tenderness, and localised resistance, whilst thoracic signs were at first in abeyance. The most valuable diagnostic sign is the increased frequency of respiration attending the thoracic lesion, without a corresponding increase in frequency of the pulse. The breathing is shallow, chiefly thoracic, but it is noteworthy that with each inspiration there is a momentary relaxation of the resistance offered by the abdominal muscles to palpation. The tenderness and rigidity is mainly superficial, and disappears on firm palpation. One of Barnard's cases was a girl aged seventeen, suddenly seized with violent epigastric pain and vomiting. The abdomen was tender, rigid, and distended in the epigastrium. The symptoms pointed to a perforated gastric ulcer, but she was really suffering from double basal pneumonia, with diaphragmatic pleurisy. A laparotomy in itself may not do much harm, but the anæsthetic is likely to increase the thoracic disease. The explanation given is that the lower dorsal nerves supply both intercostal branches, and branches to the upper abdominal wall, and the pain is referred from one to the other. Such occurrences emphasise the necessity in grave cases of a chart being kept by the nurse, not only of the temperature, but also of the rate of the pulse and respiration whilst the patient is lying undisturbed.

Phantom Tumours of the Abdomen.—Bennett[2] notes that when these are due to irregular contraction of the abdominal wall, the tumour disappears under the influence of a general anæsthetic in a peculiar way; not suddenly, but after quivering or vibrating it seems to melt away. He believes that these tumours are often caused by reflex irritation, and are cured by removal of the source

of irritation. Thus a woman who was suffering from acute eczema of the navel had a tumour simulating the enlargement of the abdomen in pregnancy, which was found to be caused by contraction of the abdominal wall. (See also "Abscess," "Appendicitis," "Hernia," "Liver," "Pancreas," "Spleen," "Stomach.")

REFERENCES.—[1]*Lancet*, 1902, ii. 280; Jane Walker, *Ibid.* p. 440; [2]*Lancet*, 1902, i, 1.

ABORTION. *Arthur E. Giles, M.D., B.Sc., F.R.C.S.*

ETIOLOGY.—A good resumé of the causes of miscarriage is given by Horrocks,[1] who introduced a discussion on the subject at the British Medical Association meeting. If a fertilised ovum should fail to secure attachment to the uterine wall, it may be expelled at the next menstrual period, without any sign of conception or pregnancy. Horrocks calls this a "menstrual miscarriage"; but, as he observes, we do not know if it actually occurs, nor, if it does, whether it is frequent. He rejects the view that there is such a thing as a "habit of miscarrying," and considers that the explanation of repeated miscarriages is usually to be found in the existence of endometritis, fibroids, syphilis, etc. To these might, in my opinion, be added extensive laceration of the cervix, the importance of which as a factor in miscarriage has been undervalued. Boggs[2] has, however, recently called attention to the close connection between extensive laceration of the cervix, especially the deep bilateral form, and early abortion; and he points out that in the early abortions of primiparæ, due to various causes, there may be some difficulty in getting the product of conception through the cervix; whereas in cases in which early pregnancy is interrupted in multiparous patients, who can give no account of any accident, blow, fall, mis-step, lift, over-exercise, nervous excitement, or any other known cause, the ovum will usually come away quite easily, and may often be found by the attending physician lying in the vagina, it having escaped from the uterus without the patient's knowledge, or possibly accompanied by slight pain or no pain at all. In such cases a deep laceration is frequently found. The lead salts are not commonly regarded as an important cause of abortions, but Schwarzwaeller[3] out of 300 abortions was able to trace a criminal lead abortion in 18 cases. The form taken was usually the commercial white lead, which the patients knew under various names. The dose was admitted in 17 out of the 18, to vary between a "knife point" and a teaspoonful. In

two cases there was no pregnancy, the patients imagining that they were "in the family way." He found the patients pale, and showing 60 to 80 per cent hæmoglobin. Lead was found in the urine. The gums showed the usual "lead line," while colic was the general symptom. He did not observe anæsthesia, paralysis, or mental disturbances in any of his cases. All of them recovered. In 2 cases, in spite of severe symptoms, the abortion did not take place, and a full-time birth occurred later. Mostly the abortion took place at least a week after taking the lead, and once it took place seven weeks after. He used **Opium, Iodide of Potassium,** and external application of powdered sulphur.

Prognosis.—As to the possibility of bearing living children, Hellier[4] points out that it is a question of some interest to determine what proportion of married women have one or more miscarriages, but never carry the function of utero-gestation to full term. One is not infrequently asked under such circumstances by a woman disappointed of maternity, what her chances are of bearing a living child. Some data for answering this question were obtained by Hellier by the analysis of notes of 1800 married women at the hospital for women and children at Leeds. These 1800 married women had given birth to 6974 children, an average of 3·87 each. They had had, according to their own statement, 1288 abortions. This amounts to about one abortion to every five and a-half children. The number of women in the 1800 who had had abortion but no children was 58. Deducting from the 1800 184 women who had never been pregnant, 1616 remain. So that of 1616 women who had been pregnant, 58 had had one or more abortions, but had never gone to term. Thus it follows that amongst a group of women where the frequency of abortion might be supposed to approach the maximum, 96·5 per cent of those who became pregnant did sooner or later bear one or more children at term.

Diagnosis.—When hæmorrhage occurs in the early months of pregnancy, the most important question to first determine is whether we have to do with an impending or completed miscarriage, or whether the symptoms are due to extra-uterine gestation. The diagnosis is in some cases very difficult, but the following broad principles will assist therein. Extra-uterine pregnancy is characterized by pain on one or other side of the pelvis; a scanty flow of dark blood or of a grumous brownish discharge, which has often been preceded or is accompanied by an attack of collapse; the presence of a swelling in the region of

one of the Fallopian tubes, or in the pouch of Douglas · and a uterus smaller than corresponds to the period of gestation. Abortion is characterized by sacral and median abdominal pains, a bright red and more or less profuse discharge, the absence of any pelvic swelling, and a uterus corresponding in size to the term of gestation, unless the ovum has been expelled.

Having settled that it is an intra-uterine pregnancy, we have to determine whether abortion is threatened, inevitable, or accomplished. If pain or hæmorrhage be present singly, and the cervix be not dilated, there is ground for supposing that miscarriage may be averted. If both pain and hæmorrhage be present, miscarriage is probable ; if the cervix be dilated, it is inevitable. In early cases, Alfred Smith[5] gives the following rule, which will help to determine whether the ovum has or has not left the uterus. If the ovum has dilated the internal os, and the external os is still contracted, the shape of the cervix on examination will be that of a cone with the apex below and base above. If the ovum be expelled the internal os is contracted and the external dilated, and the cervix therefore will be cone-shaped with the base below and apex above ; there will also be gushes of hæmorrhage if any portion of the placenta remains behind

Treatment.—In connection with abortion, treatment may be necessary in four different ways : (1) To prevent future abortions in a patient subject thereto. (2) To avert threatened abortion. (3) To complete an inevitable or incomplete abortion. (4) To induce abortion for special reasons.

The first, or prophylactic line of treatment, is very varied, according to the condition which has induced the miscarriages. Some striking results have followed the repair of a badly-lacerated cervix. In some cases complete rest at the most critical times—those, namely, that correspond with the missed periods—has answered well. Endometritis demands thorough curetting. When the miscarriages are the result of syphilis, active treatment of both father and mother should be instituted, **Mercury** or **Iodides** being given according to the particular case. Lomer[6] speaks highly of the use of potassium iodide. Not only would he give the drug in all instances of suspected syphilis (when it is always "better to ask little and treat actively"), but also in the cases of maternal kidney disease with hæmorrhages into the placenta. Further, he would give the iodide also in cases of endometritis in which there was anæmia and a brownish discharge during pregnancy ; he would then combine it with

Blaud's Pill. The two drugs ought to be given during the whole course of the pregnancy. Several illustrative cases are described in which the habit of aborting or of giving birth to dead fœtuses seems to have been checked by the iodide and Blaud's pill. The iodide acts as a specific in the syphilitic cases; it has a good influence upon the pregnancy nephritis; and it is a resorbent in the endometritis cases. It prevents the rupture of the vessels in the placenta.

According to Alfred Smith cases requiring no active interference should be treated by rest, **Opium,** and 30-minim doses of the liquid extract of **Hydrastis Canadensis.** Ergot is not to be recommended, as any dose large enough to be of use would expel the ovum. When interference is required one should remove the ovum by the finger or curette, either with or without an anæsthetic. The finger is to be preferred. If the curette be used it should be a blunt one, or if possible a Rheinstadter's spoon. In removing the ovum with the finger a useful device is to separate the ovum with the finger, and then instead of hooking it out, withdraw the finger from the womb and apply pressure externally, as in a bimanual examination, when the ovum will be expelled.

In the discussion on miscarriage, previously referred to, the late Dr. Aust Lawrence, in speaking of incomplete abortion, strongly advocated the full dilatation of the os and cervix uteri, the clearing out of the uterus with the finger, the application of tincture of iodine to the whole of the uterine cavity, and the maintaining of antiseptic precautions afterwards. The great point in the treatment he insisted on was full dilatation of the cervix and complete drainage of the uterus afterwards.

Some diversity of opinion prevails as to whether it is better to use the finger or the curette for clearing out the uterus. Stahl[7] advocates the finger, on the ground that it has the advantage of allowing the recognition of the parts to be removed. Selheim[8] prefers the finger because of the risk of perforating the uterine wall with instruments; he would, however, allow the use of an ovum-forceps if the finger is insufficient. Löwenhaupt[9] prefers the finger, not only to the curette when clearing the uterus, but also to metal or vulcanite dilators in dilating the cervix. Hawkins-Ambler, in discussing Horrocks' paper, said that for emptying the uterus, the finger was undoubtedly the best means, but there was this to be said for the curette: that it could be made absolutely aseptic, which was more than could be said for the finger.

It also removed decidual and other *débris* more effectually, and prevented the severe hæmorrhage that was likely to occur, at the time or subsequently, from the retention of clot and other material. Haultain dissented from Dr. Horrocks' recommendation to remove the fœtus piecemeal through an insufficiently dilated cervix. In a pregnancy of five months the cervix should be opened to the size of a crown piece to allow of the removal of the fœtus. Thus in an abortion at this date, in which the hæmorrhage was severe and the os only admitted one or two fingers, it was better treatment to plug the cervix and vagina, and wait, rather than at once to attempt to remove the ovum. He had on several occasions been called to remove the fœtal head which had been left in the uterus through energetic attempts to remove it rapidly. This was an extremely difficult procedure.

Among the indications for the *induction of abortion* Zanoni[10] assigns an important place to tuberculosis. He says that it is now well known that pregnancy has a deleterious influence on the course of tuberculosis. This influence may be noted both during the pregnancy and after the labour. It is the duty of the physician to determine the condition of the tuberculous pregnant woman, so as to be able to judge whether it is necessary to induce labour in order to save the patient's life. The indications for the induction of artificial labour in such cases should be : (1) The period of pregnancy ; (2) The condition of the pulmonary lesion ; (3) The general condition of the patient. The labour should be induced within the first three months of pregnancy, if possible. In the fourth month it should be induced only under exceptionally favourable circumstances, while after the fifth month it should not be induced unless there are other indications such as hold good in non-tuberculous women. The abortion should be produced rapidly. A bougie should be introduced in the evening, and allowed to remain over night. If the labour does not come on then, rapid dilatation, without anæsthesia, should be practised. The pulmonary lesion should be circumscribed and not ulcerative, and the tuberculous infection should be recent, *i.e.*, from four to six months old. Abortion is practised with difficulty on women who have already passed through a pregnancy. A large number and a virulent character of the tubercle bacilli do not contraindicate abortion, nor does a predominating toxicity of the case. When the case is evidently one of mixed infection with regular rise of temperature, an abortion should not be risked. The general condition of the patient should be good in order to warrant

the operation; the temperature should not exceed the normal, and the pulse should not be more than 100, while the digestive powers should not be impaired too greatly.

Spurious abortion.—In the *Medical Annual* for 1899 a reference was made to this condition as described by Eden. The feature of the condition is the expulsion of a decidual cast from the uterus, without the presence of an ovum, either within the uterus or outside it. Fothergill[11] has now recorded a case which is similar to the three cases described by Eden, except that a small shrivelled ovum was actually found. The case was, strictly speaking, one of early "missed abortion," in which the decidua continued growing after the death of the ovum. The other cases, however, are instances of "incomplete abortion," in which the ovum and decidua reflexa were lost, the decidual lining of the uterus being retained and growing after the death of the ovum. If these decidual casts are always due to pregnancy, the term "spurious abortion" ceases to be necessary. The practical importance of such cases depends upon their relation to ectopic gestation. When a decidual cast is passed without any portion of the ovum, careful examination should be made to make sure that there is not an ovum in one of the Fallopian tubes.

References.—[1]*Brit. Med. Jour.* Oct. 5, 1901; [2]*Montreal Med. Jour.* May, 1902; [3]*Berl. klin. Woch.* Feb. 18, 1901; [4]*Brit. Med. Jour.* Jan. 19, 1901; [5]*Brit. Med. Jour.* Oct. 5, 1901; [6]*Zeits. f. Geb. u. Gyn.* xlvi, 306, 1901; [7]*Amer. Gyn. and Obst. Jour.* Oct. 1900; [8]*Münch. Med. Woch.* March 11, 1902; [9]*Die Heilkünde,* Feb. 1901; [10]*Gaz. d. Osped.* March 2, 1902; [11]*Med. Chron.* Oct., 1901.

ABSCESS (Subphrenic). *Walter G. Spencer, M.S., M.B., F.R.C.S.*

Korte[1] gives a list of 60 cases of subphrenic abscess, of whom 40 recovered and 20 died; 27 originated in the appendix, of which 9 died; 9 in connection with the stomach, and 1 with the duodenum, of whom 5 died; 8 were on the left side, and 2 on the right; 5 arose in connection with the liver, 2 following gall-stones, and 3 hydatid cysts, all cured; 5 resulted from splenic infarcts, of whom 2 died; 1 from pancreatic necrosis, who was cured; 4 in connection with a perinephritis, 2 of whom died; 2 were caused by diseased ribs, both being cured; 4 followed pleural empyema, 1 of whom died. In 2 the origin was unknown, 1 of whom died. In 41 the operation was trans-pleural, followed by 14 deaths; 15 were incised immediately below the

margins of the ribs, with 5 deaths; and 3 through the middle line of the epigastrium, with 1 death.

REFERENCE.—[1]*Cent. f. Chir.* 1902, Beilage 82.

ABSCESS, (Tropical). *Walter G. Spencer, M.S., M.B., F.R.C.S.*

In the course of a discussion on dysentery at the Manchester meeting of the British Medical Association, Rogers[1] explained some of the discrepancies relating to tropical abscess and amœbæ, by showing that the amœbæ are to be constantly found in the wall of the abscess, and in scrapings from the wall, but with less certainty in the pus. Sometimes amœbæ alone are present, in other cases pyogenic organisms also. When amœbæ are found in the abscess the case has been one of amœbic dysentery, but a single tropical abscess may form apart from amœbic dysentery. This is, however, the only form of dysentery of which it is a consequence. Other forms, such as those occurring in connection with armies, gaols, and asylums, are not followed by the single tropical abscess, only exceptionally by hepatic abscess at all, and then it is one of the multiple pyæmic type, especially when there has been extensive intestinal ulceration and sloughing. He noted also the importance of **Leucocytosis** in the diagnosis of a deep-seated tropical abscess, he having counted as many as 30,000 or 40,000 leucocytes per 1 c.mm. Even when there is marked anæmia there is a disproportion in the number of white to red corpuscles. He gives a case where the red numbered only 2,060,000, the white were 8,625, *i.e.*, in the proportion of 1 to 332, or twice the normal.

REFERENCE.—[1]*Brit. Med. Jour.* 1902, ii, 844.

ACIDITY. (See "Dyspepsia.")

ACNE VULGARIS. *Norman Walker, M.D.*

It is interesting to note that M. Leredde[1] begins with the simple dogmatic statement that acne is a microbic affection of the skin. It is admitted that acne develops as a complication of seborrhœa. The preventive treatment of acne is the treatment of seborrhœa, and it ought always to be a part of the treatment of the acne. The lesions of acne are presented in two forms, the one characterised by the presence of comedones and hyperkeratosis, the other inflammatory.

Acne of the face, when slight, may be treated by **Warm Water** and friction; the water may contain **Borate** or **Bicarbonate** of **Soda** 3 per cent, or **Salicylic Acid, Resorcin,** or **Sublimate,** may be

employed. The face may be bathed with an alcoholic solution of **Sublimate,** 1 to 2 per 1,000, and afterwards the following **Cream** should be applied : Lanolin 10, water 20, rosewater 5. **Ichthyol** 5 to 10 per cent, is a useful application after washing with alcohol. These methods may be employed without causing inconvenience. The employment of medicated soaps, such as salicylic, ichthyol, or naphthol, is dangerous ; they often irritate by the alkali they contain. Patients should also be ordered regular hygiene, and their nourishment should contain very little greasy matter, no irritants, and the quantity of feculents, especially bread, should be reduced. Fresh air is of great importance.

Oily seborrhœa may be treated by one of the reducing agents, **Sulphur, Sulphides, Mercury,** and **Ichthyol.** Precipitated sulphur is often indispensable in the treatment. It is little irritant in the form of pastes, more so in the form of lotions, and dangerous in the form of pomades. Before applying sulphur preparations, the skin should have the grease removed by alcohol, acetone, benzol, or the like. The sulphides are mainly used in the form of baths, containing the mono- or tri-sulphide of sodium. After the bath the skin should be powdered. When comedones are in evidence it is necessary to use more active remedies. Alkalies and soaps are useful, followed by the application of keratolytic agents. The comedones can be extracted by a watch-key, but a special instrument is preferable. **Massage of the Skin** is particularly useful in this form, for the cutaneous excretion is deficient, and the circulation is poor ; it may be done by the patient himself, who should grease the fingers with vaseline.

In the inflammatory form, which is of two kinds, superficial and deep, the former rather tending to resemble eczema, sprays, incision of the pustules, and emollient lotions should be used. **Ichthyol** applications are useful, and as the disease improves **Sulphur Pastes** may be used. In the deep form energetic treatment is absolutely necessary. Cases are too often shamefully neglected. The most brutal treatment is often the best. It aims at producing acute transient inflammation of the skin, followed by a true exfoliation ; this may be brought about by **Resorcin, Naphthol,** and **Sulphur,** or a combination of these with soft soap. Besnier's formula consists of 5 parts each of vaseline, black soap, starch, and sulphur, and of 1 part each of resorcin, salicylic acid, and naphthol. Leredde inclines to think that the value of sulphur has been exaggerated, and he prefers

resorcin. Skins vary, and an application suitable for one case may be too strong for another, and too weak for a third; therefore the patient must be kept under observation so that the effects may be estimated. He places most faith in repeated exfoliative applications, and thinks that sulphur is too superficial in its action to cure really severe acne. The opening of the pustules may sometimes be necessary, but should if possible be avoided, as of course scars result.

Acne of the body should be treated by baths, friction, black soap, the application of powders or strong sulphur pastes: Sweet oil of almonds 15, sulphur 12, salicylic acid 3.

Ullmann reports[2] success in the treatment of severe acne of the back by fifty exposures of half an hour each to the **X-rays.**

Burnside Foster[3] summarizes the routine treatment of the disease, and gives one or two useful hints, such as the application of a 2 per cent **Formalin** solution in glycerin and water. It must not be forgotten that formalin is peculiarly irritating to certain skins. He believes in opening the pustules, and correctly states that if it is done with a clean, sharp, acne lancet, the scars are hardly visible. He recommends **Gasoline** as a useful remedy for patients who are annoyed by excessive oiliness of the skin. He also finds **Electrolysis** useful, either direct, the negative needle being introduced into the pustule, or in the form of surface galvanism.

Algar[4] recommends **Arsenic,** though its necessity is contra-indicated in acute cases. In this advice he differs from almost all dermatologists. The main treatment, however, he says, must be local. He recommends the dermal-curette, a favourite American remedy. He opens pustules, and applies to their interiors **Peroxide of Hydrogen** or 50 per cent **Carbolic Acid.**

Ussery[5] recommends a perfectly new treatment, *viz.*, the practice of **Circumcision,** and he quotes a case where, three months after that operation, the last of the pustules had disappeared. He suggests that adhesions around the clitoris should be attended to, and says he had hoped to have such a case to report along with this other successful one, but perhaps most people will not regret that he has been "unable to secure the consent of the patient to the procedure."

References.—[1]*Gaz. des Hôp.* March 25, 1902; [2]*Wien. klin. Woch.* No. 8, 1901; [3]*North-west. Lancet,* Dec. 15, 1901; [4]*New York Med. Times,* July, 1901; [5]*Med. Rec.* Feb. 2, 1902.

ACTINOMYCOSIS. *Norman Walker, M.D.*

A case under Kaposi's care was shown at the Medical Society in Vienna on January 17, 1902, cured by the injection of **Iodipin.** Four and a half months were required for the cure.

ADENITIS (Tubercular). *Keith Monsarrat, F.R.C.S.E.*

At the Fourteenth Congress of the Association Française de Chirurgie a discussion[1] was held on the treatment of tubercular adenitis, in which several well-known surgeons took part. Broca, in his paper, first emphasized the necessity of general hygienic treatment both before and after surgical interference, if the latter were necessary. The only surgical measures which had stood the test of time were **Interstitial Injections, Extirpation,** and **Curetting** ; the last only when extirpation was impossible, a rare circumstance. Two agents remained in favour for injection into these glands—**Camphorated Naphthol,** and **Iodoform in Ether.** In those glands which were only hypertrophied or caseous, 5 to 10 drops of fluid are injected with a syringe. This is repeated at intervals varying with the substance injected, the result obtained, and the habit of the operator. Reboul advises once a week for camphorated naphthol ; Durante every day for the iodine solution he employs. Sometimes by these means a fibroid change is induced in the gland, but this is relatively rare in simple hypertrophies, and never occurs in caseous glands ; the injection stimulates the process of caseation and produces softening and suppuration. When suppuration is established, either by these means or naturally, the pus is evacuated with a syringe, and a solution injected ; all thinned and inflamed skin must be avoided. With iodoform in ether some precautions are necessary. When injection is made into a collection near the surface it is well to express the greater part of the injected fluid after a dozen minutes or so to avoid the risk of sloughing—a risk which is acknowledged and serious, since recovery without scar is the only real advantage of the method. The method is most favourably chosen for cases of single and suppurating glands near the surface ; to inject a series of caseous but not suppurating glands one after the other may result in a considerable final scar. Extirpation, says M. Broca, when glands are not suppurating, should be confined to what he terms the lymphomatous type.

For a single caseous gland, injection has against it the length of time it will take, and extirpation produces an objectionable scar ; but extirpation is certainly indicated in covered regions.

Incision and scraping are inferior to injection for suppurating glands, except when the abscess is sub-acute. When a fistula is present extirpation is almost always possible, and much preferable to curetting. One argument against extirpation is that recurrence is not rare, in a proportion which varies directly with the operative difficulties ; they are less numerous in the hands of skilful surgeons. It is often indicated by the impossibility of carrying out a satisfactory general treatment and of obtaining for patients the sea air which is so beneficial.

Demons thought it important to differentiate between tubercular adenitis in children and that of adults, on the question of operation. Among the latter, operation was often a necessity on account of the time saved. Berger preferred **Camphorated Naphthol** for suppurating glands to iodoform in ether. Other surgeons who followed in the discussion were generally agreed : (1) On the value of interglandular injections in single glands in children, especially if suppurating ; (2) That extirpation was always called for in the cases presenting large masses in the neck ; (3) That extirpation was more commonly necessary in adults than in children, as in the latter general medical and hygienic treatment was more often possible ; (4) That incision and scraping, and the curetting of sinuses, were procedures to be avoided. The solutions for injection usually employed are : **Iodoform in Ether,** 1-10 ; **Camphorated Naphthol** (naphthol 1, camphor 2) ; **Camphorated Thymol** (thymol 1, camphor 2). Camphorated naphthol is that which is most in favour.

Mitchell[2] contributes a paper on the surgical treatment of tuberculous cervical adenitis based on the records of 170 cases treated in the service of Dr. Halsted ; 143 of these received surgical treatment. The distribution of the affected glands spoke in favour of a descending infection, 70 per cent being in the superior triangle, and where all the triangles were involved the disease was generally more extensive in the upper portion of the neck. The glands of the neck may be roughly divided into four groups ; those in the anterior triangle and those in the posterior, with two connecting chains, one in front and one behind the sterno-mastoid. The axilla was secondarily infected in 7 cases. Aid in diagnosis was afforded in 25 of the cases by the injection of **Tuberculin ;** in all except one there was a positive reaction, and in the exception there was reason to believe that there was an error in technique. With regard to treatment, 12 were treated by simple incision with the application of

COMPLETE REMOVAL OF TUBERCULOUS GLANDS FROM NECK.

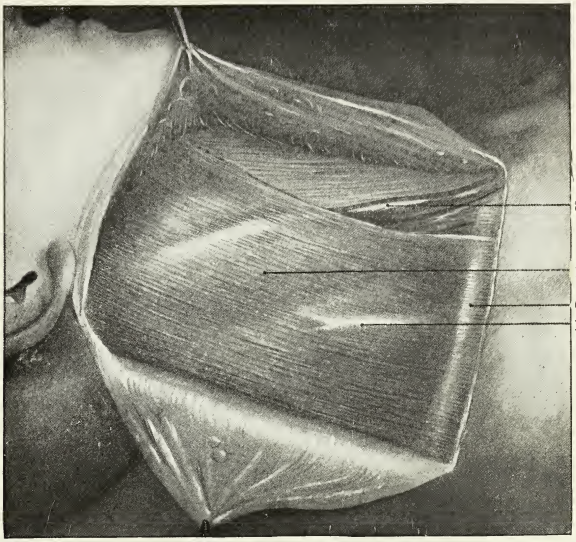


Fig. A.—Skin flaps reflected, showing quadrilateral exposure of all parts of the neck obtained through the T-shaped skin incision.

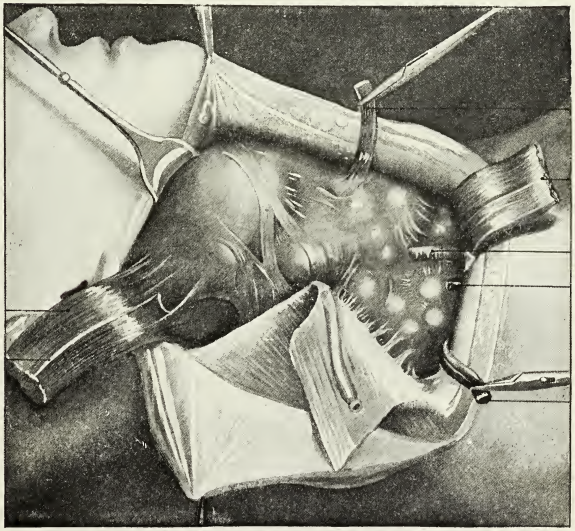


Fig. B.—Omo-hyoid and sterno-mastoid muscles divided and reflected, external jugular vein ligated and divided.

PLATE IX.

COMPLETE REMOVAL OF TUBERCULOUS GLANDS FROM NECK.

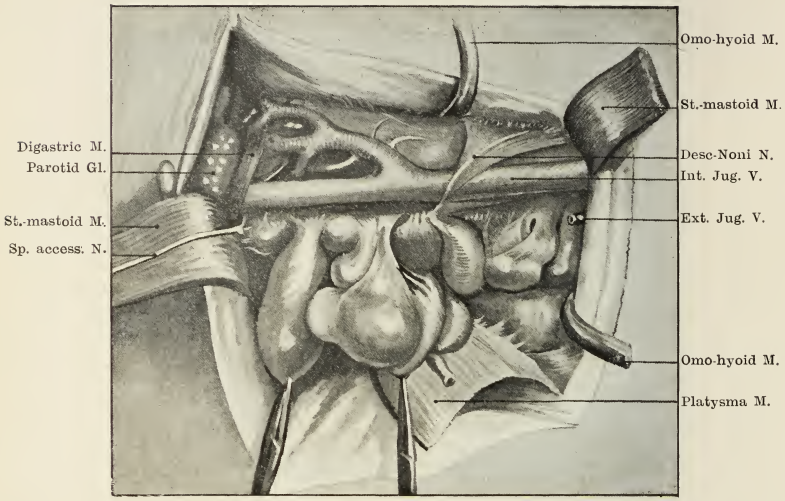


Fig C.—Glands dissected away from internal jugular vein.

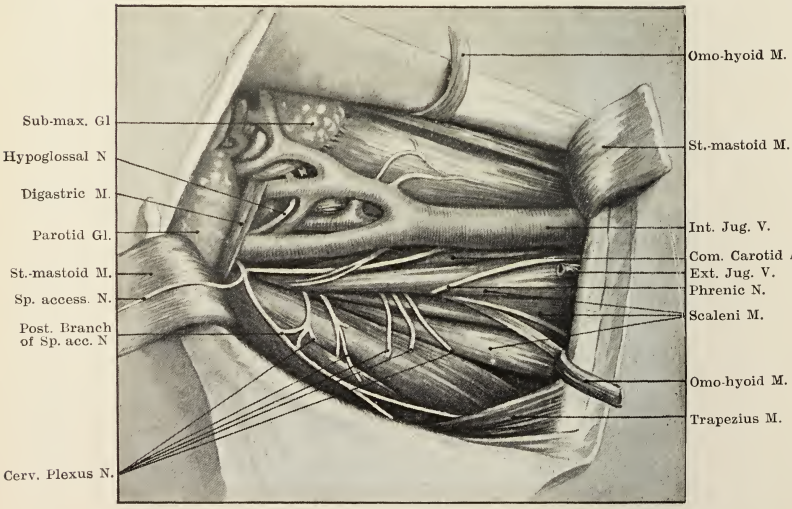


Fig. D.—After complete removal of glands—Spinal accessory nerve intact, its posterior branch given off before entering sterno-mastoid muscle, showing its anastomosis with cervical plexus.

iodoform, 69 had partial excision or removal of the involved glands only, and 59 were submitted to what is termed the radical operation, that is, removal of all the glands with the surrounding fat. This operation is done as follows : A long incision is made from behind the ear curving forwards over the edge of the sterno-mastoid muscle and then slightly backwards to the middle of the clavicle; to this is added a transverse incision above the clavicle (*Fig.* 6). The skin is dissected back, the fascia and platysma divided, the external jugular vein ligatured, and the omohyoid muscle sought. By following this muscle the internal jugular vein is exposed, and the dissection carried up along it. If the chain of glands behind the sterno-mastoid is much involved, the muscle is cut across by using the omo-hyoid as a retractor and cutting on top of it (*Plate VIII*, *Figs. A* and *B*). The spinal accessory nerve is then to be identified and freed from the mass of glands, the latter being dissected from the underlying structures and turned outwards under the nerve (*Plate IX*, *Figs. C* and *D*). A temporary ligature may be placed on the internal jugular vein, but if it is much adherent to the mass of glands a length of it must be removed. When the removal of the glands is complete the sterno-mastoid and omo-hyoid are sutured. This procedure resembles that in common use, with only detailed modifications. There were no deaths in any way connected with the operation ; but in two, alarming symptoms occurred from entrance of air into the internal jugular vein. The thoracic duct was injured four times. In the first an attempt was made to suture it, but leakage occurred, and the patient lost 13 pounds in two weeks, and the leakage was then controlled by packing ; in the second, end-to-end suture was successful, in the third the duct was nicked and a lateral ligature applied ; in the fourth suture was impossible, the duct was ligatured, and no ill-effects resulted. Only 58 cases could be followed to ascertain final results. Of these 77 per cent. were well without local recurrence, 15 per cent. dead, and 6·9 per cent. living with recurrence. The opinion is expressed that operation should be



Fig. 6.

radical in all cases; that recovery can be predicted in 70-80 per cent. of cases so treated; that tubercular disease of the lungs after complete removal is comparatively rare; and that, unless far advanced, this is not a contra-indication to operation, as the removal of the glands apparently exerts a beneficial influence on the condition of the lungs.

References.—[1]*La Presse Méd.* Nov. 6, 1901; [2]*Johns Hopkins Hosp. Bull.* July, 1902.

ADENOIDS. *W. Milligan, M.D.*

Lapeyre[1] insists upon the value of medicinal treatment in cases of naso-pharyngeal adenoids. He recommends the administration of **Iodine** in alcoholic solutions. The dose is gradually increased until from 50 to 60 drops are given "per diem." Locally he uses sprays of **Menthol** in olive oil.

Gleitsmann[2] strongly advocates the employment of **Ethyl Bromide** as the anæsthetic for this class of operations. An air-tight mask should be employed.

References.—[1]*Lancet*, Nov. 27, 1901; [2]*Med. Rec.*, Dec. 2, 1901.

ALCOHOLISM. *Graeme M. Hammond, M.D., New York*

The use of **Anti-Ethylene** in the treatment of inebriety was first brought to the notice of the profession by Triboulet and Mathieu. They first produced in a horse the habit of willingly drinking alcohol. The blood of this animal subsequently furnished a serum, which, after injecting into animals that had previously acquired the alcoholic habit, produced in them such a disgust for it that they preferred to abstain from food and drink rather than continue to take alcohol. The experimenters gave the name of Anti-Ethylene to this remedy.

Ballo,[1] in a communication to the Royal Academy of Medicine of Madrid, reports a case, the first treated in Spain by the use of anti-ethylene. The individual treated had been a confirmed user of alcohol to excess since his seventh year, and presented all the symptoms of a chronic inebriate. Injections of 5 c.cms. of anti-ethylene were administered every third day. The injections were continued for about sixty days, until a total of 100 c.cms. had been given, which, in Dr Ballo's opinion, should be sufficient to effect a cure. About the time of the seventh injection the patient began to experience a disgust for alcohol. As the number of injections increased this repugnance became more strongly marked. At the fifteenth injection it was absolute.

Larger doses up to 20 c.cms. might have been given with impunity, but the dose employed was considered sufficient.

REFERENCE.—[1]*Canad. Jour. Med. and Surg.* Feb. 1902.

ALOPECIA AREATA. *Norman Walker, M.D.*

Holzknecht[1] reports a case cured by the application of **X-rays.** The total duration of exposure was two hours. The parts which were not affected became bald, and the hair grew in on the diseased areas some weeks before it returned on the healthy ones.

Jacquet and his pupils have published several papers with the object of demonstrating a connection between this disease and dental caries, which they found repeatedly in their cases.

REFERENCE.—[1]*Wien. klin. Rund.* Oct. 9, 1901.

AMBLYOPIA. *E. H. Holthouse, M.B., F.R.C.S.*

Toxic Amblyopia.—An important contribution to the literature of this subject has been made by F. van Fleet.[1] He reports a case of sudden blindness caused by ethyl or ordinary alcohol. No similar one appears to have been previously recorded. Ordinary alcoholic amblyopia is a gradual process, brought about by the prolonged use of the refined stimulant, usually combined with excess in tobacco. Sudden blindness, however, has been generally attributed to the use of wood spirit, or methyl alcohol. In the present instance the patient was a lady who, after six month's voluntary seclusion in an inebriate institution, procured, during her temporary absence, a bottle of ordinary alcohol. She drank this, soon sank into a deep sleep, which became a prolonged stupor lasting several hours, and awoke from this state blind. Eight weeks after the sudden loss of vision her condition was as follows: The pupils were dilated to their fullest extent, and did not react to light. Vision in the right eye was limited to ability to count fingers at two feet, and in the left to bare perception of light. The optic disks were dead white, and the blood-vessels small. The hypodermic administration of **Strychnia** was then begun, in doses of $\frac{1}{60}$-grain once a day, increasing gradually until $\frac{1}{6}$-grain became the daily dose. At the end of six weeks the vision of the right eye had increased to $\frac{6}{60}$ ($\frac{20}{200}$), and that of the left to $\frac{1}{60}$ ($\frac{3}{200}$) .The fields of vision were markedly restricted.

Though this is probably the only recorded case of acute retro-bulbar neuritis immediately following the ingestion of alcohol, there seems no reason to doubt that such an event may not be

infrequent. The writer describes the course and symptoms of chronic or subacute retro-bulbar neuritis caused by the use of alcoholic beverages, and indicates the points of difference between that and the acute form. The prognosis in the chronic form, if taken in time and properly dealt with, is good, but more doubtful in the acute form, the result depending on the intensity of the inflammation. The treatment by hypodermic injection of **Strychnia,** as described above, is recommended.

Cases of blindness through the use of salicylate of sodium have been recorded. An addition to the list has been made by S. Snell,[2] the case being a young girl to whom large doses of the drug had been administered for acute articular rheumatism. The vision failed suddenly. There was no return whatever, before the patient's death from cardiac trouble. In a case recorded by De Schweinitz, and referred to here, recovery of sight took place.

REFERENCES.—[1]*Med. Rec.* Jan. 18, 1902; [2]*Trans. Ophth. Soc.* 1901, p. 306.

AMPUTATION. *Priestley Leech, M.D., F.R.C.S.*

Stephen Smith[1] has published a modification of his method of amputating at the knee joint, which makes it available in the case of senile gangrene. The directions given are as follows: Make a straight incision commencing two inches above the patella, downwards over the centre of that bone to the tuberosity of the tibia; from the lower end of the incision make two curved incisions passing downwards on either side of the leg, and united behind by a transverse incision across the upper border of the calf. Dissect these two flaps from the tibia and fibula, remove the patella, and disarticulate the tibia.

The advantages of this procedure are summed up as follows: The straight incision on the anterior part of the knee which opens the joint, divides only the terminal extremities of the articular arteries, thus preserving to the flaps the full amount of blood which they normally receive. In the other approved methods of amputating at the knee joint, the dissection involves the division at their origins of several arteries supplying the flaps by the straight incision on the posterior part of the leg or in the ham. Though the recurrent tibial is divided at its origin, yet its anastomosis with the articular arteries is preserved, and thus the capillary circulation is well maintained at the extremity of the flaps. The precautions to be taken are: The lateral incisions from the lower extremity of the perpendicular incision

should curve well forwards, the internal to secure an ample flap for the long internal condyle of the femur, and the external to include the branches of the recurrent tibial artery.

REFERENCE.—[1]*Med. Rec.*, Dec. 22, 1900.

ANÆMIA (Pernicious). *R. Hutchison, M.D.*

Etiology.—Hunter's views on this subject were summarized in the last number of the *Annual*. In a communication to the Pathological Society of London[1] he has recently amplified them to some extent. He believes that in pernicious anæmia there is evidence of a double infective process: (1) A specific infection of which the chief evidence is glossitis; (2) A septic infection of mouth, stomach, and intestine, of which the chief evidences during life are varying degrees of "oral sepsis" and "septic gastritis," the latter recognizable during life by the vomit and various symptoms of oral, gastric, and intestinal disturbance, and after death by the conditions of gastritis, gastric atrophy, intestinal atrophy, erosions or ulcers now and again found in the disease. In all the cases that he has met with the anæmia arose "without discoverable cause," and he believes, in opposition to most German writers, that it was Addison's chief merit to have pointed this out as characteristic of this form of anæmia, whereas it was the chief demerit of Biermger's description that he classed together under one name anæmias of widely different origin. Hunter regards it as "a remarkable infective disease, with obscure but definite antecedent history, obscure but definite mode of origin, obscure but definite infective lesions, and definite clinical history."

Protests have recently been urged against Hunter's theory of *oral sepsis* as a common cause of pernicious anæmia. Thus McPhedran[2] points out that it is questionable whether decayed teeth and diseased gums are found to exist in pernicious anæmia in a greater proportion of cases than in other chronic exhausting diseases. Were bad teeth a cause of the disease it would be much commoner than it is. Of seventeen cases in which he has notes of the state of the teeth, caries of one or more teeth occurred in ten, but nearly all of them were too well cared for to be a possible source of infection of the stomach. In only four were the gums unhealthy. In none was there a purulent secretion. It is further to be observed that these cases were not more affected by stomatitis or gastro-intestinal disturbances than were those whose teeth and gums were perfectly healthy.

Goodall[3] also found that in four out of nine cases the teeth were quite good.

Pathology.—Rumpf[4] draws attention to the neglect of the *chemical examination of the blood* in pernicious anæmia. His analyses show that it contains more water than normal blood, a smaller quantity of solids, a higher proportion of chlorine, and lower proportion of potassium, iron, and fat. Upon these observations he has based a special line of treatment, but it may be pointed out that they are exactly what one could have foretold from the great diminution of red cells in the blood of this disease.

McCrae[5] has studied the *nervous manifestations* of pernicious anæmia. Out of fifty cases nervous manifestations of one kind or another were present in twenty. At one extreme there are merely sensory disturbances, and at the other complete paraplegia, with loss of control of the bladder and rectum. The predominating type is a spastic condition, with marked sensory disturbance. Practically all the cases show involvement of the posterior column, and a few of the lateral columns as well. The cervical region suffers most, and the lower part of the cord is relatively less affected. Since improvement occurs in the nervous symptoms as the blood improves, he is inclined to think the anæmia is at the bottom of the cord changes, and not that the two conditions are due to the same cause.

Diagnosis.—Opposition continues to be offered to the view that *megaloblasts* are invariably present in the blood in a genuine case of pernicious anæmia. Körmöez,[6] in five fatal cases of the disease, found no megaloblasts in the blood of three, but he believes that the marrow is always megaloblastic. In the blood of a large number of cases of secondary anæmia from various causes he has never found megaloblasts, though he has sometimes detected them in the marrow after death. Hunter[7] states that the appearance of megalocytes or megaloblasts is *not* characteristic of pernicious anæmia, for they are found in other forms totally distinct from it, notably in "septic" anæmia. Goodall,[8] however, is of opinion that it is exceedingly rare to find megaloblasts in any disease simulating pernicious anæmia, and in none are they numerous, or at all events as numerous as the normoblasts.

Treatment.—Walsh[9] has had no success with **Antistreptococcic Serum** in this disease; neither has McPhedran or Goodall. The belief in the curative properties of **Arsenic** seems also to

be on the wane, though McPhedran has had one apparent cure under its use. Rumpf, acting upon the results of his analyses of the blood, has treated four cases with **Salts of Potash**—the citrate, tartrate, and carbonate being employed; and although three of the cases were dying when treatment was begun, all recovered! These results are certainly noteworthy. Humphrey reports three cases in which decided improvement resulted from **Open-air Treatment** conducted on the lines of that pursued in cases of phthisis.

REFERENCES.—[1]*Brit. Med. Jour.* May 24, 1902; [2]*Canad. Jour. of Med. and Surg.* Dec. 1901; [3]*Scot. Med. and Surg. Jour.* April, 1902; [4]*Berlin klin. Woch.* May 6, 1901 (in *Brit. Med. Jour. Epit.* July 13, 1901); [5]*Johns Hopkins Bull.* March, 1902; [6]*Deut. Med. Woch.* Jan. 2, 1902 (in *Med. Rec.* Jan. 25, 1902); [7]*Op. cit.*; [8]*Op. cit*; [9]*Med. Rec.* Jan. 4, 1902; [10]*Lancet*, March 9, 1901.

Graeme M. Hammond, M.D., New York.

Billings[1] discusses the characteristic changes in the cord in pernicious anæmia, and their resemblance to other conditions of diffuse degeneration. He infers the cause to be toxæmia occurring after pregnancy, syphilis, malaria, and fevers, as a rule associated with disorders of the digestive tract. Spinal cord lesions, occurring in a small percentage of cases, may appear as one of the earliest manifestations of the disease. Of the author's 36 cases paræsthesia was noted as an early symptom, appearing simultaneously in feet and hands. In 10 cases a spastic and usually an ataxic condition, more or less progressive, was noted. In three cases complete flaccid paraplegia with loss of knee-jerks and voluntary bowel and bladder control appeared. Girdle sensation was present in the spastic cases, contrary to the usual teaching. In three cases there were pathological changes in the cord with a slight sclerosis or degeneration in the lateral and posterior columns.

The writer's conclusions are as follows: (1) There is a well-established relation of diffuse cord degeneration with pernicious anæmia; (2) It seems highly probable the homolysis and the cord changes are due to the same toxin; (3) While the source of the toxin is unknown, the fact that the gastro-intestinal disturbance is so common in the disease would lead one to suppose it is intestinal in origin; (4) The diffuse degeneration of the cord which occurs in conditions without pernicious anæmia does not appear to differ essentially from those of pernicious anæmia; (5) It is possible that a common toxin exists as a

blood circulating poison in one individual, acts upon the nervous apparatus in another, and coincidentally upon the blood and cord in others.

REFERENCES.—[1]*Bost. Med. and Surg. Jour.* Aug. 28, 1902; *Jour. Nerv. and Ment. Dis.* Nov. 1902.

ANÆSTHESIA. *R. Hutchison, M.D.*

Embley[1] has published three elaborate papers on the *causation of death during the administration of chloroform*, based on experimental work carried out with the aid of Prof. C. J. Martin, of Melbourne. The following are some of his principal conclusions:

(1,) The heart muscle is very sensitive to the poisonous effects of chloroform. This conclusion is directly opposed to the teachings of the Hyderabad Commission, but is in accord with the views of most other investigators.

(2,) During the earlier part of its administration, chloroform increases the excitability of the vagus mechanism. This is due to the action of the drug on the nerve centres, and is more fatal in its effects from being exercised upon a heart whose spontaneous excitability is already diminished by the direct action of the chloroform. Vagus inhibition is thus the great factor in the causation of sudden death under chloroform in dogs.

(3,) The cerebral vaso-motor mechanism is stimulated, at any rate for a time, by chloroform. This is in accord with the views of Gaskell and Shore and Dastre, but opposed to those of every one else. Its action in the peripheral vascular mechanism, however, is paralytic. The nett result is a fall of blood pressure, from paralysis of the muscle cells of the heart and of the arterioles.

(4,) Failure of respiration in inhalation experiments is mainly due to fall in blood pressure. With a good blood pressure, failure of respiration is practically impossible. Restoration of respiration is dependent upon restoration of blood pressure.

(5,) Failure of respiration occurring in the early stage of anæsthesia happens as often after, as before, stoppage of the heart.

The author refrains from discussing the practical application of these results at present, but points out one obvious moral, *viz.*, that only weak chloroform vapour (less than one per cent) should be used in the early stages, until the initial increase of vagus excitability has given place to diminution. In other words, *take time* in putting the patient under narcosis.

Crouch and Corner[2] discuss in an interesting paper the important question, *Is chloroform more dangerous than ether?* Out

of 2400 patients to whom ether had been given at St. Thomas' Hospital, ten developed pyrexia with some respiratory troubles within twenty-four hours, although all had been perfectly sound in the lungs before the operation. One of the cases proved fatal. Out of 600 patients to whom chloroform was given under precisely similar circumstances, but one developed any respiratory trouble. These figures, according to the authors, necessitate a reconsideration of our position with regard to the relative danger of the two anæsthetics. The death rate from chloroform is usually considered to be 1 in 3000. Their figures for ether work out at 1 in 2400, and are very similar to those given by Dr. Probyn Williams for the London Hospital in 1897, *viz.*, 1 in 2910. If these figures are correct, it is wrong to preach the greater safety of ether ; we are merely changing the venue of death from the operating table to the bed ; the house-surgeon's signature for the coroner's.

Luke[3] criticises this conclusion, mainly on the ground that the assumed chloroform mortality of 1 in 3000 is too low. He thinks that the strongest proof of the greater safety of ether for routine cases, taking *all* points into consideration, is the fact that the more experience an anæsthetist has, the more he tends to use ether. He recommends those whose faith in ether has become perturbed by the resuscitation of the "bronchitis bogie" to read Dr. Probyn-Williams' paper on the "Use and Abuse of Ether" in the *Edinburgh Medical Journal* for May, 1902.

Hewitt[4] in a lecture on some recent developments in the administration of anæsthetics, points out as two of the main drawbacks to the administration of "Gas and Ether" by the ordinary *Clover's method* : (1) That it introduces the "asphyxial factor" in anæsthesia too much ; and (2) That it permits of the possibility of there being a slight odour of ether at the commencement of the administration. The former of these drawbacks he attributes to the narrow bore of the ordinary inhaler, which, by preventing easy ingress of oxygen and escape of CO_2, causes the blood to become asphyxial, with the result that muscular spasm and stertor appear. This objection he has obviated by the use of a wider-bore apparatus. The second drawback he has overcome by the introduction of a fixed ether reservoir, which permits of the introduction of the ether when the patient is already partly anæsthetised by nitrous oxide. For a full description of the apparatus see the original paper. For ordinary purposes Hewitt advocates the adoption of the gas-ether-chloroform

sequence, *i.e.*, the successive administration of these three anæsthetics to the same patient. By this system anæsthesia is induced by gas and ether, and maintained by chloroform. Gas is advantageous to the comfort of the patient ; ether is safe and therefore to be preferred by the anæsthetist ; and chloroform is best from the point of view of the surgeon, because it keeps the patient quiet, and prevents venous engorgement and hæmorrhage. This system also avoids the risk which chloroform induces in the struggling stage, whilst the unpleasant sequelæ of ether anæsthesia are also avoided. The author gives practical directions for the carrying out of the method.

Ethyl Chloride is one of the newer anæsthetics. It is administered by allowing the spray from an ordinary ethyl chloride tube to play into a suitable mask, and so be inhaled. Ware[5] gives a full description of a simple mask which he uses, made from an ordinary gas apparatus. He has used the method in 400 cases, with 95 per cent of successes, whilst in 5 per cent it failed to produce complete relaxation. It is most suitable for minor operations. The advantages claimed for it are : (1) There is no cyanosis ; (2) Little or no danger of over-dosing ; (3) It is extremely portable and handy ; (4) It is much less expensive than gas. It is very important that the compound be perfectly pure. McCardie[6] has used ethyl chloride in this country, and reports several cases. He has a high opinion of its value, and thinks that it might with advantage be used in several of the shorter operations instead of nitrous oxide, especially in the case of less vigorous patients.

Somnoform is another new anæsthetic mixture. It is composed of 60 parts of ethyl chloride, 35 parts of methyl chloride, and 5 parts of ethyl bromide. It has been introduced into this country by Rolland and Robinson, in a paper read before the annual general meeting of the British Dental Association in 1902.[7] They claim for it instantaneous action, rapid elimination and return of consciousness, and complete safety. It is inhaled simply from a handkerchief folded into a cone. It can be administered with the patient in any position, and no matter whether the stomach is full or empty. It has been given over 5000 times, and in some cases for operations lasting as long as an hour.

Hilliard[8] has published a further note on his method of prolonging **Nitrous Oxide** anæsthesia for dental operations, by administering the gas through a naso-pharyngeal tube apparatus, which

is made by Messrs. Worth & Co. The writer claims that since he first introduced this apparatus in 1898, he has made good his contention that it would render the use of ether in dentistry unnecessary ; that it is more convenient, portable, and economical than any other way of administering nitrous oxide ; and, finally, that it is free from risk of damage to the nose, naso-pharynx, and mouth, and is without danger to the patient.

REFERENCES.—[1]*Brit. Med. Jour.* April 5, 12, 19, 1902 ; [2]*Lancet*, May 24, 1902 ; [3]*Ibid*, May 31, 1902 ; [4]*Ibid.* Mar. 30, 1901 ; [5]*Med. News*, Aug. 3, 1901 ; [6]*Lancet*, July 20, 1901 ; [7]*Jour. Brit. Dental Assoc.* June, 1901 ; [8]*Lancet*, June 28, 1902.

ANÆSTHESIA (Local.) *Priestley Leech, M.D., F.R.C.S.*

Terrell[1] thinks that local anæsthesia by a combination of **Eucaine** and **Cocaine** ought to be more used than it is. He says they are best used dissolved in sterile water, freshly prepared, and when properly injected they can be made to produce the most profound and complete anæsthesia. The combined infiltration and regional method is the best. Hœlcher[2] has conducted some experiments which show that the danger of poisoning when cocaine is injected into the limb is greatly increased if the Esmarch bandage be removed immediately after the operation ; if, however, the bandage is allowed to remain for some little time and then removed, toxic symptoms do not occur. This effect is supposed to depend upon the influence which is exercised upon the alkaloid by the tissues themselves, by either fixing it in the tissues or destroying it locally.

REFERENCES.—[1]*New Orleans Med. and Surg. Jour.* March, 1901 ; [2]*Therap. Gaz.* Dec., 1901.

ANEURYSM. *Priestley Leech, M.D., F.R.C.S.*

Page[1] reports a case of ruptured gluteal aneurysm in which he tied the internal iliac artery. The patient, a man forty-four years of age, came with a large non-pulsatile swelling reaching from the crest of the ilium to below the great trochanter. It was fluctuant, and towards the lower end it was very red and looked like an abscess pointing. An inch incision showed only blood clot, so it was sewn up, and a diagnosis of either ruptured aneurysm or new growth was made, most probably the former. An incision was made over the tumour, and a quantity of old and recent clot turned out, and it was then found that there was active hæmorrhage from the sciatic notch. After several attempts had been made the bleeding point was secured by a

pair of bent forceps. This, however, seemed an uncertain means of permanently checking the hæmorrhage, as the movements of the patient would probably displace the forceps ; so Page tied the right internal iliac transperitoneally. Unfortunately, although there was no further hæmorrhage, the man died of pneumonia, whether the result of sepsis or not was doubtful. He suggests whether in case of ruptured gluteal aneurysm it may not be the better policy to tie the internal iliac to begin with, as if the clots are turned out the patient might bleed to death before the internal iliac could be tied.

Treves[2] says the value of operation in arterio-venous aneurysm needs fuller demonstration. The introduction of the bullet of small calibre into warfare has once more made arterio-venous aneurysm common. He describes four cases which have come under his notice ; two were cases of aneurysmal varix, and two of varicose aneurysm. The prognosis appears to be more favourable in varicose aneurysm than in aneurysmal varix. In neither variety can the outlook be said to be other than unfavourable. Spontaneous cure in these forms of so-called aneurysm does not appear to occur. The mortality is not so great as in purely arterial aneurysms ; gangrene is quite rare in the arterio-venous form, and rupture is comparatively uncommon. On the other hand the conditions now under consideration lead to great functional troubles, and to considerable and increasing local disturbances. This is especially seen when the lower limb is affected. The muscles waste, the limb remains swollen and painful, it becomes more or less useless, and is apt to find itself rigid in a vicious position. Ulcers form, and other troubles fall upon the part, which are the outcome of a greatly disturbed circulation. A condition of solid œdema, which occasionally merits the term "elephantiasis," is not unusual, and the uselessness of the limb, together with the pain and discomfort of which it is the seat, have in some instances led to amputation. In some cases the condition is practically incurable, or the relief given is of necessity incomplete. In the majority of cases a cure may be anticipated. The only method of treatment is by operation. Rest, posture, bandaging, and persistent compression do no good, and in more than one instance the latter has done harm. The Hunterian ligature of the artery is to be condemned, and the only operative measure to be recommended is ligature of the vessel or vessels at the wounded spot. The ideal procedure is that in which both the affected artery and vein

are ligatured above and below the point of the abnormal communication. It is obvious this cannot always be done. In varicose aneurysm it is as well that the sac should be excised also. It is doubtful whether the two conditions, aneurysmal varix and varicose aneurysm, can be distinguished before operation with any frequency. Full notes are given of four cases, one involving the common femoral, one the posterior tibial, one of the femoral in Hunter's canal, and one probably of the internal maxillary artery.

Innominate Aneurysm.—An interesting and instructive case of this disease is reported by C. A. Ballance.[3] The aneurysm extended under the manubrium, the right upper part of which was dull on percussion. The right radial and carotid pulses were smaller than those of the opposite side, but were not dicrotic, and the right pupil was smaller than the left, but otherwise normal; the right vocal cord moved slowly, but was not paralysed. The patient complained of considerable pain in the region of the tumour, and of frequent hacking cough, with slight expectoration. He was first put on a modified Valsalvan treatment; being kept absolutely quiet, and his food and drink—especially the latter—were reduced, and **Iodide of Potassium** was given in large doses. In spite of this the aneurysm increased in size, and it was determined to **Ligate** the innominate artery below the aneurysm, and also the carotid artery above, so as to cut off any regurgitant stream, the aneurysm being supposed to involve the upper end of the innominate, the first part of the right subclavian, and the origin of the right carotid arteries.

At the operation the shoulders were raised and the head was thrown back, so as to place as much of the artery in the neck as possible. A median incision was made from the lower margin of the thyroid cartilage to the lower border of the manubrium. The cervical fascia was divided, and the adjoining margins of the sterno-thyroids above and the sterno-thyroids below were separated. The dissection was continued between the tumour and the trachea (which was displaced towards the left), and the finger passed without difficulty into the superior mediastinum until the arch of the aorta was felt. By working to the right it was found that the tumour ceased abruptly a little distance from the aorta, and that half an inch of healthy, or at least undilated innominate artery intervened between the aorta and the tumour. The question of dividing the manubrium arose, as recommended by Milton, of Cairo. The plan adopted was as

follows: The manubrium was bisected vertically with the saw and chisel, and at the level of the upper borders of the second costal cartilages a transverse incision was made in it. Strong hook retractors were inserted in the vertical incision and the two halves pulled apart. This method was recommended by Farquhar Curtis.[4] Separation of the fragments was not obtained to the desired extent, and so half an inch of bone was removed on either side of the vertical incision. A forehead electric lamp was a valuable aid, as the parts though freely exposed, are some considerable distance behind the sternum. The vessel was gently cleared for the aneurysm needle, and the left innominate vein being pushed downwards, the needle was passed, then threaded with gold-beater's skin ligature (ox peritoneum), No. 4 size, and then withdrawn. This was done twice, so that four strands of ligature were passed round the artery. They were tied in a stay knot, and the vessel was occluded without injury to its coats. The pulsation in the aneurysm immediately ceased. The common carotid was next exposed just above the aneurysm, and two strands of gold-beater's skin ligature were passed around it, and tied in a stay knot; the artery was distended, but not pulsating, and it was obvious the carotid was distended with clot. The patient died next evening from left hemiplegia.

At the *Post mortem* examination the right common carotid, right internal carotid, and right middle cerebral arteries were found to be distended with clot. No disease was found in any other organ. The aneurysm involved the innominate artery with the exception of the lower half inch, the first and second parts of the right subclavian artery, and the origin of the common carotid artery.

In his remarks, Ballance says proximal ligature is the only sure means of effecting occlusion of the innominate for innominate aneurysm. There is no risk of injury to the pleura if the vessel be approached from the front and from the tracheal side, and if the knife is not used outside the limits of the pulsation. For ligature of the innominate artery section of the sternum is unnecessary. Curtis's modification of Milton's method is admirably adapted for the exposure of the superior mediastinum, but for the purpose of dealing with the great arteries as they come off from the aorta, it is not only unnecessary, but inadvisable. The gold-beater's skin, he thinks, is the best ligature; it consists of pure white fibrous tissue, of which the outer coat of the artery consists.

MacFarlan, of Edinburgh, prepares it. It is strong, inelastic, round, smooth, pliable, easily tied, and absorbable, but it cannot be boiled. Floss silk can be boiled, and can therefore be easily sterilised; hence goldbeater's skin cannot be considered superior to floss silk.

The knot used was the stay knot, the method of applying which is not Ballance thinks very generally understood. The principle upon which it depends is that the mutual support, which the ligatures afford one another by friction and interlocking, prevents the first stitches of the knot slipping when the ends are relaxed, as they must be to complete the reef knot. The best way to tie the stay knot with two ligatures, is to make on each separately and in the same way, the first hitch of a reef knot, and to tighten each separately, so that the loop lies in contact with the vessel without constricting it (*Fig.* 7); then taking the two ends on one side together in one hand,

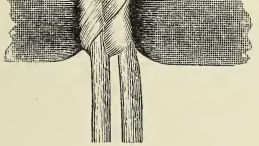


Fig. 7.



Fig. 8.

and the two ends on the other side in the other hand, constrict the vessel sufficiently to occlude it, and finally to complete the reef knot. The simplest method of completing the knot is to treat the two ends in each hand as a single thread, and to tie as if completing a single reef knot (*see Fig.* 8). Three or four ligatures can be employed in this manner; by pulling the ends of the ligatures simultaneously they will lie evenly side by side, and constrict a greater length of vessel than if they were tied separately, and were lying as they then might, one on the top of the other in a deep grove in the artery.

Death in this case was due to extension of thrombosis from the aneurysm to the middle cerebral artery; and the question arises, Is this an inevitable consequence of ligature of the innominate? This case supports some experiments of Spencer

and Horsley, which showed that compression or ligature of the common carotid artery arrested hæmorrhage from the middle cerebral artery, and caused anæmia of the brain within its area of distribution. This led them to suggest ligature of the common carotid artery in cases of ingravescent apoplexy. It is a remarkable fact that both in Curtis's case and Ballance's, the common carotid, when exposed for ligature, was distended with clot at the time of operation. The anæmia is a temporary one, and one does not expect coagulation of the blood in the middle cerebral artery; in fact coagulation on the distal side of a common carotid ligature is not usually extensive, and he thinks the clotting in this case was due to a general and not a local condition. The patient was ill-nourished, and the Valsalvan treatment brought about a condition of low nutrition, and the fatal thrombus was really marantic thrombosis, and not a necessary sequel of the operation. Under modern conditions, Ballance thinks the adoption of the Valsalvan treatment in an operable case of aneurysm is an error.

References.—[1]*Lancet*, Aug. 16, 1902; [2]*Brit. Med. Jour.* May 10, 1902; [3]*Lancet*, Nov. 1, 1902; [4]*Ann. of Surg.* Oct. 1901.

ANUS. (See also "Rectum.") *Herbert W. Allingham, F.R.C.S.*

Fistula in ano.—Joseph Mathews,[1] of Louisville University, relates two cases which illustrate the widely divergent conditions that may be met with in instances of fistula, and he wisely rules that no hard and fast laws can be drawn up for the steps of operation upon these cases.

Samuel Grant, of the New York Post-Graduate Medical School, approaches the same subject from another side, *viz.*, from the point of view of fistula in connection with phthisis. He concludes, in accordance with accepted opinion here, that severe operations should not be done for cure of fistula, unless the phthisis is slight or stationary, but that operations for relief of pain or to prevent extension of the fistula are not only justifiable, but to be strongly recommended, unless the patient is near his end from the phthisis.

Plastic operation for restoration of sphincter.—A case is related by Chas. Chetwood,[2] of New York. The condition was due to goring by a steer, the patient being a cattle dealer. The result of the operation was good so far as solid fæces were concerned.

Pain in sphincter.—In *Treatment* for June, 1902, a contribution is published upon the subject of treatment by electric currents

of high tension and frequency from the *Annali di Elettriatè Medica e Terepin Fescia*. The case quoted is not very convincing.

REFERENCES.—[1]*Therap. Gaz.* Sept. 6, 1902; [2]*Med. Rec.* April 5, 1902;

AORTIC DISEASE. (See "Heart.")

APPENDICITIS. (See also "Peritonitis, Acute.")

Walter G. Spencer, M.S., M.B., F.R.C.S.

The views of American surgeons may be summarized in the answers of Murphy of Chicago[1] to seven questions, which may be quoted as characteristic :—

(1,) Generally speaking, what mode of treatment do you advise during the first two days of a mild or moderately severe attack of appendicitis? *Ans.*—The symptoms of the first two days are no index to the severity of the subsequent pathologic changes. I always advise operation in the first two days, better the first day.

(2,) What in a severe case during the same stage? *Ans.*—Every case is a severe case, for one cannot tell what is going to follow, no matter how mild the symptoms may be.

(3,) What treatment do you advise during the active stage, from the beginning of the third day on, in a mild or moderate attack of appendicitis? (*a*) When the condition is growing worse; (*b*) When the condition seems to be stationary; (*c*) When the condition is improving. *Ans.*—(*a*) Operation; except when there is evidence that the disease is subsiding after the fourth day; then I occasionally wait; (*b*) After the fourth day, wait; before the fourth day, operate; (*c*) As in *b*.

(4,) What treatment do you advise during the same active period in a very severe attack with great depression of the vital powers? *Ans.*—Operate; except that I do not operate when the patient is moribund, or is "gulping" or collapsed.

(5,) If called to a case which has been treated medically or expectantly, at the fourth or fifth day, and you find the acute attack subsiding, pain absent, temperature at 100° or below, no tenderness on palpation except over the cæcum, but a brawny tender swelling there, do you advise operation then at once, or waiting for all the acute symptoms to subside? *Ans.*—Waiting, light diet, and absolute rest.

(6,) Under what circumstances would you advise against operative intervention in acute appendicitis? *Ans.*—As in (4).

(7,) After a single mild or moderate attack, is it best to

operate when convalescence is complete, or to wait until after a second or third attack ? *Ans.*—Operate after first mild or severe attack ; do not wait for subsequent attack. I saw a patient die in the seventh attack.

From my answers you can see my position is this. All cases should be operated sooner or later, and on that basis, the time to perform the operation is when it entails the least danger for the patient. *That is, within the first twenty-four hours* of the first attack. The medical profession will finally come to the twenty-four hour standard, as I have done for many years. All other times are poor substitutes. *The real life-saving operation is the operation within the first twenty-four hours of the first attack, by a competent surgeon ;* and none other should perform it.

Two points upon which there is some difference in practice may here be noted. Should a patient be operated upon after recovering from the first mild attack of appendicitis ? The reply should be yes, if an enlarged or tender appendix persists and can be discovered by palpation, including bimanual examination. For in such cases another attack is practically certain to occur at some unexpected time and be of quite uncertain a character. The other point is the question whether, after an abscess has been opened and drained, the patient should be advised to have his appendix removed. Much has been said on this point during the past year. Some advise that he should wait, pointing out that many have been reported to have lived for years without further trouble, and that therefore unless there are further signs of appendicular trouble the patient should not be submitted to a further, and often a very difficult, operation. Others would equally strongly advise removal of the appendix as a diseased organ, for until this is done the patient's health cannot be assured, and cases of dangerous and even fatal relapse follow the omission to excise the appendix. Granted the diagnosis that the appendix is the source of the abscess, it appears that the only cases in which any confidence can be felt are those in which the appendix has sloughed into the abscess cavity without a fæcal fistula forming. Obliterative appendicitis, complete disappearance of the mucosa, and the shrinkage of the appendix to a fibrous cord appears to be very rare, and even when this has partly or wholly occurred it has been the source of complications, such as of intestinal obstruction, owing to the formation of bands. The safest conclusion seems to be

that when, after an abscess has healed, a thickened or painful appendix can be made out, the patient should be advised to submit to excision at once.

REFERENCE.—[1]*Inter. Med. Mag.* Nov. 1901.

ARTERIES. *Priestley Leech, M.D., F.R.C.S.*

Suture of Arteries.—Hubbard[1] gives a sketch of the history of the suture of arteries, and has collected records of 20 recent cases of operations on arteries. He experimented, but not satisfactorily, as he could not work under strict asepsis, an essential in this operation, as any infection about the vessel makes the chance of thrombosis greater. The circulation must be controlled sufficiently far away from the injury to give room to work, especially if a resection has to be done, for an artery when cut retracts a long way. A continuous suture minimises the handling, and is in other respects advantageous. After suturing is complete, take the compression off the distal end of the artery first, as the blood will flow back, and test the suturing before the vessel bears the full blood pressure. It is good to suture the sheath of the artery to make a barrier against sepsis. Halstead, of Chicago,[2] reports a case of successful suture of a wound of the axillary artery. He says the indications for arterial suture are as follows: (*a*) All cases where ligature of the artery may cause serious nutritional changes in the parts supplied by the injured vessel, which is especially liable to occur when the corresponding vein is injured at the same time; (*b*) All wounds of large vessels caused by puncture, gunshot, or laceration; (*c*) Operation wounds of large vessels, accidental or intentional, as when part of the vessel must be removed. In wounds involving no more than half the circumference of the vessel simple suture is enough. If more than half the circumference is involved resection and end to end anastomosis by invagination is the best method. Experiments on animals have shown that after end to end anastomosis the vessel generally becomes obliterated by endothelial proliferation, but this does not usually occur till after several weeks, during which time collateral circulation will probably have been established. According to Halstead the arteries in which suture is important are the aorta, carotid, iliac, femoral, popliteal, subclavian, and axillary. Perfect asepsis is essential, and the operation should not be performed if the wound is septic. In the reported case Halstead closed the wound in the axillary artery with catgut sutures passed through the two outer coats

of the vessel ; the perivascular sheath was also sutured, and the wound closed without drainage.

Hogarth Pringle[3] reports a successful case of wound of the external iliac artery treated by suture. The patient, a man forty-five years of age, had been stabbed probably by a pocket knife ; the wound in the artery was about a quarter of an inch in length, and it was situated about a quarter of an inch above the origin of the deep circumflex iliac. A large extravasation had formed in the left iliac fossa ; the aorta was compressed, and a small clot which projected through the opening in the artery was removed ; the sheath of the artery was much bruised, but the iliac vein was uninjured. The artery was sutured with catgut, and the deep circumflex iliac tied. A very decided kink was produced in the artery on releasing the aorta, but no leakage took place, and the tibial pulses at the ankles showed no difference in force. The patient recovered without a symptom, and six months later was all right.

Dr. Depage (Brussels),[4] in doing preliminary ligature of the external carotid before removal of the tongue for cancer, wounded the common carotid by his dissection forceps ; he first tried lateral ligature of the artery, but after a few pulsations the hæmorrhage recurred ; he then closed the opening with two sutures of No. 1 silk. The patient recovered, and the carotid pulse can be felt.

References.—[1]*Boston Med. and Surg. Jour.* March 27, 1902 ; [2]*Med. Rec.*, July 20, 1901 ; [3]*Scott. Med. and Surg. Jour.* Oct. 1901 ; [4]*Jour. de Chir. et Annales de la Societè Belge de Chir.* No. 1, 1902, p. 45.

ARTERIO-SCLEROSIS. *Alfred H. Carter, M.D.*

This forms the subject of a thoughtful article by Adler, of New York.[1] He points out that in spite of the large amount of labour expended upon this morbid condition, there is still much about it which is very obscure. No single theory as yet advanced appears to cover all cases. There are good reasons for believing that in the majority of instances it is not primarily a vascular disease, but the result of metabolic depreciation or perversion. As a matter of fact, the association of tissue degeneration, fibrosis, and arterio-sclerosis is almost invariable, though the exact nature of the relationship is at present unknown. The metabolic defect may be variously induced by syphilis, gout, alcohol, lead, infections, senility, and so forth. Its distribution may be general or local, and the

symptoms to which it gives rise vary accordingly. Adler goes on to refer to various local types, namely: A cardiac type (angina pectoris); a renal type, culminating in Bright's disease; a cerebral type, leading to thrombosis; further suggesting the possibility of a spinal type simulating tabes; and a gastro-intestinal type expressing itself by various forms of gastric, intestinal, hepatic, and pancreatic disturbance. He recognizes that, as to treatment, the restoration of the vessels to their normal condition is hopeless, and the most that can be expected is arrest of the lesion. The indications are, to deal with any probable toxic influence, and to relieve symptoms according to circumstances. He refers approvingly to systematic use of the **Iodides.** Both as a prophylactic measure and for the disease in progress **Diet** is very important. Lastly, bright sunshine, dryness of atmosphere, and purity of air also deserve close attention.

Chuchwsky[2] claims to provide a new sign of arterio-sclerosis. He states that after smart direct percussion of the chest over the aorta strong enough to produce slight pain, the arch of the aorta dilates sufficiently to be recognizable by ordinary mediate percussion. On the other hand, by two or three sharp blows on the epigastrium the aortic arch may be shown to contract. The absence of these reactions indicates sclerosis or atheroma of the aorta. [Apart altogether from the skill required to map out the limits of the aortic arch, it is very doubtful whether the observation is practicable or even desirable for ordinary clinical use.—A. H. C.]

REFERENCES.—[1]*Med. Rec.* May 10, 1902; [2]*Intern. Med. Mag.* May, 1902.

ARTHRITIS DEFORMANS (Rheumatoid Arthritis).

Bertram Abrahams, M.B., B.Sc., M.R.C.P.

The nomenclature of this disease is still undecided. There are, however, great advantages in the use, suggested by Garrod, of the "non-committal" term arthritis deformans, which has been generally adopted by Continental and American authorities.

ETIOLOGY.—Poynton and Paine[1] found a diplococcus in the joints of a man, aged sixty-seven, who had suffered from the disease, but had died of carbolic acid poisoning. This diplococcus could be cultivated, and when intravenously injected into rabbits produced arthritic changes, being again isolated from the joint exudations. Garrod[2] doubted if this experimental arthritis corresponded to the disease in the human

subject, and Shattock[3] though admitting that some articular lipping was present, states that the fibrillation and cell-proliferation of the articular cartilage were not satisfactorily present in the experimental arthritis.

An important discussion on chronic joint diseases was held at the 1901 meeting of the British Medical Association. Garrod,[4] who opened it, expanded the views he had previously expressed at the Chelsea Clinical Society (see *Medical Annual* for 1902). He limited the diseases under consideration to those in which neither a bacterial nor a neurotrophic origin had been proved. From arthritis deformans itself he considered that the joint affection in children, described by Still, was entirely distinct. The two cases fell into two categories, the nodular and the fusiform ; these represent totally different diseases, of which he suggests calling the latter rheumatoid arthritis [better arthritis deformans], the former osteo-arthritis. Within these, certain varieties can be distinguished, such as the form which is mainly confined to single joints, such as the hip-joints of elderly men. With regard to the relations of the disease to gout and rheumatism, Garrod holds that the nodular form is obviously in no way connected with the latter, while the only relation it bears to gout is that some of the anatomical changes in both appear to be of dystrophic origin ; the changes in the nodular form of old people are indeed comparable to those seen in neurotrophic arthropathies. As to the fusiform variety, Garrod says that in the vast majority of cases there is no reason to suspect it of any association with rheumatism ; it is, however, a difficult matter to say that the latter plays no part in its causation. The question is one which our present clinical knowledge is insufficient to settle. Garrod hopes that ere long bacteriology will be able to supply the answer. Treatment should comprise the removal of debilitating influences, such as menorrhagia, dyspepsia, and diseased gums, a **Liberal Diet** with a moderate allowance of **Stimulant,** the exhibition of **Tonics,** and the prescription of fresh air **Exercises.** Garrod thinks massage useful for the muscles, but considers that both it and passive movements do harm when applied to the joints themselves. As regards health-resorts, he believes the character of the water to be of less importance than the method of its employment, for which purpose he prefers the Aix douche-massage treatment [strongly advocated also by Kinnicutt[5]] to deep-immersion baths.

In the subsequent discussion Osler accepted Garrod's classification, to which he added Still's form as a third variety. He drew attention to the acute febrile onset of the disease, with symptoms resembling rheumatoid fever, occasionally seen in women. He referred also to two varieties in which the spine was specially attacked, the one described by Bechteren, and the other, in which there was also arthritis of the hips and shoulders (spondylose rhizomelique) by Strümpell and Marie. Cave pointed out that the specificity of "rheumatoid arthritis" could not be established either on anatomical or on clinical grounds. He described a perfectly typical case which followed rectal ulceration. If chronic arthritis is of infective origin, the infective agents may be multiple and the course influenced by personal predisposition; moreover, the arthritis may propagate itself after the infection has died out. He strongly advocated the employment of physical methods in treatment. West supported Cave's views, and held that most promise was held out by the etiological classification of the diseases under notice. He had himself found that joint symptoms subsided in a lady with the treatment of a cystitis. Luff favoured the microbic rather than the nervous view; the more articular form he considered to be a distinct disease. As treatment, he held with a generous diet, radiant heat baths, and the administration of **Guaiacol** and **Potassium Iodide.** Herringham spoke up for the unity of the disease, rather than its separation into categories, such as those described by other speakers, which he held to betoken simply variations of resistance according to the age of the patient. Hawthorne found that for the pain and stiffness of arthritis deformans full doses of **Sodium Salicylate** at night were very valuable. To this extent he could not agree that therapeutic tests disproved the rheumatic theory. Calwell also agreed with the infective theory combined with cold, damp, and general uncleanliness; he said there was some evidence of the disease being water-borne. He opposed the use of potassium iodide, which in his opinion lowered the patient and caused anæmia.

The nervous theory has been strongly urged by P. W. Latham.[6] He considers the disease due to changes in the nerve-centres, as evidenced by the neuralgias and muscular atrophy. The joint changes, moreover, in his opinion, closely resemble those due to injury of the spinal cord and nerves. He has himself seen, after a blow which caused cerebral symptoms

and certain paralysis, inflammatory changes in the wrist, finger, and ankle-joints, due to irritation of the bulbar vasomotor centre; recovery was effected by the aid of counter-irritation to the vertebræ. This treatment is, he holds, indicated in early cases of "rheumatoid arthritis," and he has found counter-irritation to the cervical and lumbar spine useful in two instances.

Luff[7] holds that most cases of "chronic rheumatism"—which to be genuine should involve no disappearance of cartilage or formation of osteophytes—are arthritis deformans, while a few are gout. The symmetry and creeping onset of the former suggest a bacterial origin, while the wasting is not nervous, but due to disuse. The disease may be combined with a rheumatic predisposition, but not with gout. Derwent Parker[8] on the other hand, says that most cases which come to Bath for treatment, are either chronic rheumatism, chronic gout, mixed forms of the two, or their secondary effects. "Rheumatoid arthritis" thus plays a very subordinate part. Out of 500 hospital cases 37·62 had cardiac complications, and of these less than half had had acute rheumatism. Changes, such as are described in the joints, in arthritis deformans may result from rheumatic, gouty, septic, and tuberculous arthritis. Kudiastoff[9] and Goldthwaite[10] discuss the etiology of spondylitis deformans, which they both agree is but a form of arthritic deformans localised in the vertebral column. The latter recommends tonic and mechanical treatment, with the use of a fixation apparatus if the symptoms come on acutely.

Burn[11] summarises the therapeutic indications (see also "Rheumatism, Chronic.") He finds general **Hot-Air Baths,** and especially **CO_2 Douche,** more anodyne and on the whole better than local applications. The mechanical treatment should aim mainly at restoring the tone of the atrophied muscles. Deformities are to be corrected by extension apparatus, the limbs being rigidly fixed, and the patient kept in bed.

References.—[1]*Brit. Med. Jour.* Jan. 11, 1902; [2]*Ibid.*; [3]*Ibid*; [4]*Brit. Med. Jour.* Oct. 12, 1901; [5]*Med. Rec.* Mar. 2, 1901; [6]*Lancet*, April 6, 1902; [7]*Edin. Med. Jour.* March, 1900; [8]*St. Bart. Hosp. Reps.* xxxvi. p. 177; [9]*Vratch*, in *Med. Rec.* Dec. 14, 1901; [10]*Med. Rec.* Mar. 29, 1902; [11]*Wien. klin.* Sept.-Oct. 1902.

ARTHRITIS (Infective Non-Rheumatic.)

Bertram Abrahams, M.B., B.Sc., M.R.C.P.

Gonococcal.—Stewart[1] has carefully analysed 48 cases, of which only 6 were women. The average age of the patients

was thirty. Only 3 had previously had rheumatism, but 15 had had gonorrhœal arthritis before; 26 cases occurred after first attacks; there was no relation between the severity of the attack and the liability to arthritis; 18 cases occurred in the acute stage, before the end of the third week; in 5 the arthritis developed more than a year after the onset of the gonorrhœa, which had become chronic gleet. In only 4 was the urethra normal at the commencement of the arthritis. The onset was usually gradual, but sometimes there was acute fever, and at others acute arthritis. The commonest form was a subacute polyarthritis, commencing in one joint and spreading to others, without clearing up in that originally affected. Most of these cases did well when admitted early, but half were left with partial ankylosis of some of the joints. There were 12 chronic cases, which were not much improved by treatment; there were also 3 septicæmic cases. The knees were most often attacked, in 29 cases; the heels and plantar fascia being involved in 18; then in the following order the ankles, small joints of the feet, elbows, shoulders, wrists and small joints of the hand. Least often were the vertebral, temporo-maxillary, sterno-clavicular, and thyro-arytenoid. The commonest complication was endocarditis of the mitral valve, which occurred in 7 cases. Only 9 cases were cured, 35 were improved, and 4 chronic cases derived no benefit from treatment. All were treated with rest in bed, and low diet. Internal remedies and iodine locally were of but little use. The **Hot-air Bath**—daily sittings at 300° F.—was of most value. Hot fomentations relieved pain, and massage caused increased mobility in some chronic cases. Halle[2] records 2 cases in girls, twenty-seven and five years respectively, both the subjects of vulvo-vaginitis. In one case the sterno-clavicular articulation, in the other the hip-joint was involved. Both recovered; the author recommends douching with 1 in 1000 **Permanganate.** Unger[3] reports a case of gonorrhœal polyarthritis, in which the gonococcus was obtained in pure culture in blood drawn from the median vein. He states that for cultivation purposes at least, 10 c.c. of blood must be drawn, that it must be well diluted to lessen its bactericidal power, and that a suitable fluid medium must be used. As to treatment Thomas,[4] adopting Grosse's method, uses intra-muscular injections of half a grain of **Calomel** at intervals of 2-4 days, and states that the results are specific. Mattieu[5] states that gonorrhœal arthritis can be aborted in three or four days. Delherm, working in his wards,

arranged electrodes so that a current of 20 to 50 m.a. could be passed through the joint; the sittings lasted fifteen minutes. Two were given on the first day, and one per diem afterwards. Immediate benefit followed, and the most obstinate case was cured in fourteen sittings.

Pneumococcal.—Arthritis due to the pneumococcus has been very fully described by Leroux.[6] Cave[7] summarises his results and adds a case of his own, occurring in a man, aged fifty-four, who was moribund when medical advice was sought. He had had an attack of pneumonia with a crisis on the sixth day, followed by a recurrence. Cave saw him on the eleventh, when he had had pain in the left shoulder, following a wrench, for three days. At the *post-mortem* the joint was found to contain pus from which pneumococci were cultivated. Pneumococcal arthritis occurs mostly in adult and advanced life, and is much commoner in men than women; 23 cases out of 31 died. With the exception of the hip the larger joints are more affected than the smaller; suppuration is the rule. Pneumonia was present in 28 out of the 31 cases; infective endocarditis, pleurisy, empyema, etc., were also met with. In 14 cases out of 31 the inflammation was localised in a previously damaged joint. Even where recovery occurred permanent stiffness of the joint often resulted. The affection has been produced experimentally by intravenous injection of pneumococci after the joint has been injured, as by injection of turpentine. Raw[8] records 7 cases, of which 4 recovered, 3 after incision, and one after drainage; 5 were suppurative and 2 serous. The ages of the patients ranged from twenty-three to fifty-eight, averaging forty-three years; 6 patients were males, one a female. All suffered from right pneumonia, and the arthritis was also in every case right-sided. The pneumococcus was invariably present in the joints.

Tuberculous.—Considerable attention has lately been given to a form of "pseudo rheumatism" of tuberculous origin. This appears to have been first systematically described by Poncet, who records more cases in two recent papers.[9] In the latest he describes three cases in the joints, in two of which he found tubercle bacilli. Maillard[10] tries to establish the affection as a definite type, and enumerates 7 cases beginning as an acute or subacute rheumatism, and going on into tubercular manifestations in the joints or elsewhere. The condition is to be diagnosed by the absence of other causes, by the condition of the part, and the failure of salicylate treatment. One patient

had a tuberculous elbow complicating lupus of the face, but the chronic form is, according to Maillard, usually a deforming arthritis of one joint, chiefly the wrist, fingers, ankle, knee or hip, in the order named. Help in diagnosis is to be obtained from skiagraphy and by palpation of the soft fungoid swelling.

Bronchiectatic.—H. E. Symes-Thompson[11] records a rather interesting case of bronchiectasis in a woman of twenty-six, in whom the sputum at one time became more copious and offensive. This was accompanied by swelling of the ankle-joints, and subsequently the wrists, knees, and to a slight extent fingers, became involved. There was no creaking ; the knees contained a little fluid, and there was marked muscular wasting. The sputum had latterly diminished, and became less fœtid. The more acute joint symptoms yielded to **Salicylates.**

Pulmonary hypertrophic osteo-arthropathy.—E. F. Buzzard[12] gives the *post-mortem* report of a well-marked case of this affection. No joint changes were found. The disease should be removed from this group, and the case is only mentioned here for convenience sake.

Syphilitic.—Morestin[13] has made a very systematic and complete study of articular syphilis. He divides its manifestations into two classes : (1) Early arthropathies ; (2) Late arthropathies. The former comprise arthralgia, subacute arthritis, and hydrarthrosis. Arthralgia is the commonest form ; its sole symptom is pain, neither the size nor the mobility of the joint being affected. The larger joints are chiefly attacked, but none are exempt. Rapid recovery under **Mercury** is the rule. Subacute arthritis is an early secondary symptom ; it affects chiefly the larger joints, and is sometimes multiple, but even then remains localised to two or three joints, and does not shift about. It resembles gonococcal arthritis, but is not so acute or painful. It usually gets well under mercury. Hydrarthrosis also belongs to the early secondary period, and is more common in females. It usually consists in a painless effusion into the joint, generally the knee. Mercury most often effects a cure, but the joint may be left permanently weak. The late arthropathies include a synovial and an osseous form. The former is characterised by hydrarthrosis. It is always monarticular and generally affects the knee, which becomes swollen, flexed, painful, and weak. Besides synovial effusion there are hard masses in the synovial sac. The condition is due to gummata in the sub-synovial tissue or the membrane itself ; if these are not

treated they may break down and cause acute arthritis. The lesion in the osseous form commences in the extremity of a bone, the joint being secondarily affected. Later on there is hydrarthrosis; both epiphysis and diaphysis are involved. The treatment is that of tertiary syphilis; if there is much pain trephining the bone may give relief. The arthropathies of inherited syphilis come on late, when the bones are in active growth. The principal forms are: (1) Simple osteo-arthropathy, which affects mainly the knee, and has the same signs as acquired osseous arthropathy; (2) Bilateral hydrarthrosis; (3) Deforming osteo-arthropathy with osteophytic outgrowths.

REFERENCES.—**Gonococcal:** [1]*Mont. Med. Jour.* March, 1901; [2]*Jour. de Méd.* June 25, 1900; [3]Quoted in *Med. Rec.* Jan. 11, 1902; [4]*Le Mois Thérap.* 1901, ii, p. 59; [5]*Gaz. Hebd. de Méd. et de Chir.* 1901, No. 53, and *Lancet*, July 13, 1901. **Pneumococcal:** [6]*Les Arthrites a Pneumococques*, Paris, 1899; [7]*Lancet*, Jan. 12, 1901; [8]*Brit. Med. Jour.* Dec. 21, 1901. **Tuberculous:** [9]*Lyon Méd.* Aug. 28, 1901; *Gaz. Hebd.* 1901, No. 59; [10]*Gaz. Hebd.* 1900, No. 78. **Bronchiectatic:** [11]*Med. Press and Circ.* Oct. 30, 1901. **Pulmonary Hypertrophic Osteo-Arthropathy:** [12]*Brit. Med. Jour.* June 1, 1901. **Syphilitic:** [14]*Arch. Gen. de Méd.* vol. v, 1901.

ASPHYXIA. (See "Stertor.")

BANTI'S DISEASE. *R. Hutchison, M.D.*

The exact relationship of "Banti's disease" to the better known "splenic anæmia" of adults is still disputed. According to Senator,[1] who may be taken as representing the view of most authorities on the matter, splenic anæmia is simply an early phase of Banti's disease, which really occupies three stages: (1) An anæmic stage, lasting three to five years or longer; (2) A transition stage, in which the urine becomes sparse, and contains urates, urobilin, and at times traces of bile pigment, and which lasts a few months; and (3) The ascitic stage.

The first stage corresponds to the condition formerly described as simple or primary splenic tumour with anæmia, and latterly as pseudo-leukæmia or splenic anæmia. The later stages were formerly classified as cases of cirrhosis. The splenic enlargement depends on a fibro-adenitis. In the centre of the follicles surrounding the artery is found a zone of overgrown connective tissue. In the first stage the veins show a covering of large cells, giving the appearance of an epithelial canal to the vein. Later the pulp is transformed into fibrous tissue. In the splenic vein and in the portal artery, extending into the substance of the liver, are found

plaques corresponding to the atheromatous and sclerotic plaques of the aorta ; in the liver, ring-formed cirrhotic changes, starting in the interlobular spaces around the branches of the portal vein and spreading into the neighbouring tissue. The splenic juice is found to be completely devoid of nucleated red blood cells. The bone medulla (of the long bones) is fœtal in type. There is no enlargement of lymphatic glands, nor are any other organs involved in the process. Banti looks upon the spleen as the seat of origin of the disease, and considers that the disease is an infective one, though no observer has been successful in discovering a micro-organism in the splenic fluid. In all probability the unknown poison either gains an entrance from without into the blood current and thence into the spleen, or is built up in the form of an auto-intoxication. Another possibility is that the poison is first developed in the digestive tract ; as disturbances of digestion, and especially diarrhœa, are frequently early symptoms. The ascites is of particular interest. In one case, in spite of increase of the splenic tumour, a great collection of fluid was found in the abdomen. Within three-quarters of a year about 5½ gallons were drawn off. There was no appreciable change of size of the liver, and no jaundice, and further, following a treatment of good diet with iron, arsenic, and other preparations, no return of fluid occurred in the eight months since the last paracentesis. The ascites, therefore, cannot be due to interstitial hepatitis, and, for many reasons, one can put aside the theory of circulatory stasis, due to the size of the splenic tumour. It must be due to some local cause in the abdominal cavity, which acts with the anæmia and the cirrhosis.

Among the striking clinical phenomena may be emphasized :— Hæmorrhages from the gastro-intestinal track, from the nose, the lungs, the urinary canal, and the mouth and in the skin, icterus, melanoderma (according to Osler), and occasionally pyæmia. The examination of the blood is of great interest, and Senator gives the "count" of twenty cases. The changes, which vary within certain limits, are : (1) Decrease of number of red corpuscles ; (2) Decrease of volume of hæmoglobin, which is greater than can be accounted for by the decrease of red cells ; and (3) Decrease of number of leucocytes, specially showing a want of multinuclear neutrophile leucocytes.

Murrell[2] has recorded a case which he believes to have been one of Banti's disease, and furnishes an excellent bibliography of the subject. In discussing his case he disagrees with those

who regard the supervention of fibrosis of the spleen and cirrhosis of the liver as essential to the diagnosis of a case of true Banti's disease, and points out that Banti himself[3] failed to make this distinction, and merely speaks of a notable tumefaction of the spleen and also of the liver, "a tumefaction independent of any preceding morbid condition, and not associated with any leukæmic alteration of the blood."

Rolleston,[4] in a very full paper on *splenic anæmia*, discusses the question of its existence as a morbid entity, and concludes that the characters which go to make up its features are :—

(1,) Anæmia of the type usually spoken of as chlorotic, *viz.*, a diminution in the number of red blood-corpuscles with a diminished corpuscular value in the hæmoglobin.

(2,) Absence of any leucocytosis. Further, the number of white blood-corpuscles is usually diminished (leukopenia).

(3,) Considerable splenic enlargement, which cannot be correlated with any other known cause, such as leukæmia, syphilis, tuberculosis, malaria, hepatic cirrhosis.

(4.) The prolonged nature of the disease.

(5,) The tendency for gastro-intestinal hæmorrhages from time to time.

(6,) The termination of the disease, if sufficiently prolonged, in hepatic cirrhosis with ascites (Banti's disease).

He describes fully the morbid anatomy and histology of the disease, as outlined above in Senator's paper. As regards the pathogeny of the affection, he considers it probable that in splenic anæmia there is a chronic infective or toxic process which has its headquarters in the spleen, and that the poisons produced there give rise in the first instance to endothelial hyperplasia and fibrosis of that organ, and later so inhibit blood-formation as to produce anæmia of the type usually regarded as chlorotic. The fact that a terminal cirrhosis of the liver may supervene is quite compatible with this theory that there is a chronic infective or toxic process going on in the spleen. As to the cause of the process we are as much in the dark as we are with regard to the essential cause of lymphadenoma. There is, however, an analogy between the endothelial proliferation and the large-celled hyperplasia seen in some cases of tuberculous adenitis.

Treatment.—The treatment of splenic anæmia consists in **Removal of the Spleen.** The results of the operation are encouraging. M. L. Harris and Herzog[5] have collected nineteen cases,

fourteen of which recovered, four died, and in one the result was not reported.

REFERENCES.—[1]*Berlin klin. Woch.* Nov. 18, 1901 ; [2]*Lancet*, April 26, 1902 ; [3]*Dell' Anæmia Splenica, Arch. di Senola d' Anat. Pat.* 1883 ; [4]*Clin. Jour.* April 16, 1902 ; [5]*Ann. Surg.* July, 1901.

BASEDOW'S DISEASE. (See "Goitre.")

BERI-BERI. *James Cantlie, M.B., F.R.C.S.*

Although beri-beri has been discussed by many observers during the past twelve months, it cannot be said that our knowledge of the etiology or spread of the disease has advanced to any great extent. The opinion, however, is gaining ground that beri-beri is not dependent on diet or drinking water.

Manson[1] understands beri-beri to be "a form of multiple peripheral neuritis which occurs endemically and epidemically, and is specially characterized as compared with other forms of peripheral neuritis : (1) By proneness to œdema ; (2) To implication of the neuro-muscular system of the central organ of circulation ; (3) By complete absence of trophic skin lesions ; (4) By absence of paresis of the muscles of the head and neck ; (5) By marked implication of the organs of sight, hearing, taste, and smell ; (6) And of the mental faculties."

The causes of beri-beri assigned by the more modern writers are grouped under the headings of the dietetic theory, and the microbic theory of the disease.

Manson[2] states his hypothesis of the etiology of beri-beri as follows : "I hold that this neuritis is produced (*a*) by a toxin, (*b*) the product of a germ operating in (*c*) some culture medium (*d*) located outside the human body. Further, I hold that (*e*) the said toxin enters the body neither in (*f*) food nor in (*g*) water, and am thereby forced to conclude that it is introduced (*h*) through the skin or (*i*) that it is inhaled. The fact that beri-beri is due to a toxin and not to a germ living and multiplying in the body of the patient, Manson holds to be rendered probable from the fact that when a patient leaves the area in which he sickened for one which is free of the disease, the symptoms usually begin to mend and the patient tends to recover.

Arthur Stanley,[3] from his investigations in Shanghai, came to the conclusion that there were no specific bacteria in the blood of beri-beri patients.

The toxin of beri-beri not introduced by food.—Travers,[4] in Kwala Lumpor, Malay States, says that although the inmates

of the hospitals and the gaols—five public institutions in all—were supplied with food in common, yet beri-beri prevailed in one of these institutions only, whilst four of them remained wholly free from the disease. So scientifically and thoroughly was this investigation carried out by Travers, that it would seem a flawless and conclusive proof that the specific agent concerned in the production of beri-beri is not conveyed by food.

The toxin not conveyed in drinking water.—This was proved in the case of two institutions placed side by side, the male and female prisons in Singapore, with identical piped-water supplies. One, the male prison, was attacked with beri-beri, whilst the other, the female prison, remained exempt.

Beri-beri not conveyed as an infection.—Manson[5] holds that as beri-beri is not due to a germ operating directly in the human body, it cannot be passed as an infection directly from person to person. He concludes that the virus is conveyed to man either by the air or through the skin by contact, or by means of some insect or other animal which inserts the poison under the skin.

Rost[6] carried out a number of experiments on fowls and pigeons, and claims that a disease exactly similar to beri-beri was produced in fowls by : (*a*) Feeding them on fermenting rice obtained from native Indian rice-liquor shops ; (*b*) Feeding them on mouldy rice obtained from the lower bags of damp go-downs ; (*c*) Intraperitoneal injection of rice-water-liquor ; (*d*) Subcutaneous or intraperitoneal injection of the venous blood of beri-beri patients ; re-injection from fowls suffering from the disease produced as above. Rost holds that there is convincing proof of the connection between beri-beri and a disease in rice ; he ascribes the disease to rice liquor made by allowing damp rice to ferment in jars which are never cleaned, the water being merely poured off into bottles.

Sambon[7] regards rice merely as a vehicle of infection on which a micro-organism develops in certain places and under certain conditions. He believes the specific organism lives within the human body, and that it is conveyed by food. He points out that besides a fungus in the rice, there are numerous insects and mites that live in stored rice, and the granaries are constantly visited by mice and rats. Sambon, in referring to the outbreak of neuritis in Manchester in 1900, said he was inclined to believe that all forms of multiple peripheral neuritis, both in Europe and in the East, are the outcome of specific

infection, and it may be possible that the administration of alcohol or arsenic may favour the development of the micro-organisms of multiple neuritis. These parasites, like aspergillus glaucus, mucor mucedo, and other arsenio-bacteria, may have a special affinity for arsenic and other poisons.

The prophylaxis of beri-beri, according to Sambon, should be as follows :—

(1,) Men who have recently suffered from beri-beri should not be allowed to join coolie gangs, because they would most probably suffer from a relapse of the disease and possibly become a source of infection to others.

(2,) Patients suffering from beri-beri should be isolated in beri-beri countries, because, under certain as yet undetermined conditions, they are undoubtedly a cause of further infection.

(3,) Open wounds, ulcers, and abrasions of any kind should be most carefully cleansed and dressed in those who are obliged to associate with beri-beri patients.

(4,) The diet supplied to coolie gangs and to the inmates of collective dwellings should be varied and rich in nitrogenous ingredients. The rice should be of good quality, recently decorticated, properly stored, carefully washed, and thoroughly cooked.

Ronald Ross[8] states that arsenic was found in the hair of twenty-one cases of beri-beri in Penang and Adampur, and in several cases reported from Singapore. He regards this either as a coincidence, or, on the other hand, it may point to a real connection between the poison and the disease (beri-beri), which resembles chronic arsenical poisoning in many points.

Cantlie[9] points out that in Brazil, the Moluccas, and the Luiga Archipelago beri-beri prevails, yet rice forms no part of the diet. He considers beri-beri communicable, and states that he had seen in a general ward in Hong Kong, in which beri-beri patients were being treated, the patients with open sores contracted the disease, whilst other patients with no solution of continuity of the skin escaped. Cantlie further draws attention to the fact that in the Japanese naval and military hospitals, in which an improved diet was associated with the disappearance of beri-beri, in other hospitals from which a change in the diet was purposely withheld the disease simultaneously disappeared.

Prout,[10] from an experience gained in Sierra Leone, favours the idea that beri-beri is due to a toxin and not to a germ.

Hamilton Wright[11] found in beri-beri cadavers changes in

the posterior ganglion and anterior horn cells which give origin to the degenerated nerves, and in the combined and hypoglossal nuclei of the bulb in those cases when the fibres from these centres were atrophied. The lesion is scarcely distinguishable from that found in cases of alcoholic polyneuritis. Wright mentions that he found quite half the phrenic fibres a few inches above their junction with the diaphragm in various stages of early degeneration, and that abdominal respiration had practically ceased in the patient, in whose case he found this lesion a few days before death.

Bolton[12] describes an outbreak of beri-beri at Diégo Garcia, the southern island of the Chagos group, Indian Ocean. The disease was imported by coolies from a neighbouring island; five months afterwards it spread to a few of the inhabitants of Diégo Garcia, but finally subsided and disappeared when the immigrants left the island. Bolton also quotes a similar experience in Fiji in the year 1894, where an epidemic of beri-beri occurred amongst Japanese imported coolies, but disappeared from the island when the infected immigrants were sent back to Japan.

References.—[1]*Brit. Med. Jour.* Nov. 23, 1901; [2]*Ibid.* Sept. 20, 1902; *Jour. Trop. Med.* Oct. 1, 1902; [3]*Jour. of Hyg.* July, 1902; [4]*Brit. Med. Jour.* (quoted by Manson), Sept. 20, 1902; [5]*Ibid.*; [6]*Indian Med. Gaz.* Dec. 1900, July, 1901, July, 1902; [7]*Jour. Trop. Med.* Nov. 1, 1902; [8]*Brit. Med. Jour.* Sept. 20, 1902; [9]*Ibid.*; [10]*Ibid.*; [11]*Ibid.* June 29, 1901; [12]*Jour. Trop. Med.* Aug. 15, 1902.

BLACKWATER FEVER. *James Cantlie, M.B., F.R.C.S.*

Up to the present the pathology of blackwater fever has not been settled. We are still ignorant of the exact relation of the disease to malaria, whilst many hold that the disease develops independently of malarial infection, and the part played by quinine in its production is still being debated. The argument that because the malarial parasites are not met with, or are in insignificant numbers in blackwater fever, that therefore the disease is not of malarial origin, is dealt with by J. W. W. Stephens.[1] This observer points out that we get malarial fever without parasites in the peripheral circulation, even in persons who have never taken quinine. The absence of malarial parasites in the blood does not therefore negative the fact that the patient is the subject of malarial infection, but, on the other hand, it does not prove that blackwater fever may not be due to malaria.

In the absence of parasites in the blood we have yet two proofs left that " the fever " is due to malaria, namely : (*a*) The presence of pigmented large mononuclear leucocytes ; and (*b*) The relative change in the percentage of large mononuclear leucocytes. Concerning the former of these, a negative examination is not absolutely conclusive against malaria. During an attack of blackwater fever in a malarial patient, it has been found that the parasites disappear so rapidly that there is possibly some other chemio-tactic factor at work apart from the influence of quinine. *Post-mortem* evidence of malaria as judged by the amount of pigment deposited in the endothelial cells and the leucocytes of the spleen and other organs may be negative, and in two *post-mortems* made by Koch there was a complete absence of pigmentation.

Is quinine the immediate cause of blackwater fever?—This subject was dealt with as long as forty years ago by Tomaselli,[2] and the two Plehns published over eighty cases of blackwater fever before Koch took up the subject. All these observers inclined to recognise quinine as a factor in the disease, and in no case could Stephens and Christopher exclude quinine as a determining cause. Stephens concludes his paper thus : (*a*) Blackwater fever is essentially a malarial infection (*b*) in which quinine is the most common immediate determining cause of intoxication ; (*c*) Protection from malaria will insure protection from blackwater fever. Complete protection from malaria, as Stephens proved by his own experience in tropical Africa, can be attained without taking quinine if the **Mosquito Net** is systematically used, and scrupulous attention is paid to clothing.

R. U. Moffat, C.M.G.,[3] draws attention to what he calls a frequent error in diagnosis, namely, that the temperature very often remains normal, or even subnormal, at a time when the patient's symptoms and the state of his blood would point to the fact that a malarial attack has already begun. Moffat has expressed the belief[4] that blackwater fever is due to a chill acting at a certain stage of the development of the parasite [malaria] in a patient predisposed by acute or chronic malarial infection. He objects to Koch's assumption, that quinine is a potent factor in the etiology of blackwater fever because in the majority of cases there is a history of quinine having been taken. As, however, quinine is taken by practically everyone in the tropics when the slightest feeling of *malaise* occurs, should influenza or pneumonia develop after the chill, instead

of blackwater fever, it would be as logical to ascribe these ailments to previous dosage with quinine, as to assume that blackwater fever is invariably so caused. Surgeon-Major Kleine[5] gives a series of cases of blackwater fever which seems to favour Koch's theory—that the hæmoglobinuria which at times complicates malaria is generally, if not always, due to the action of quinine on corpuscles damaged by malaria. Notwithstanding all the evidence about **Quinine** causing blackwater fever, the fact remains that quinine is the only reliable and potent **Treatment** for malarial fever[6]; yet Koch's theory is apt to frighten inexperienced persons against using the drug which renders life possible in malarial countries, and which, if eliminated from the category of treatment of malaria, will not only increase the mortality, but even cause a heavier death-rate in blackwater fever itself.

Dr. R. O'Sullivan-Beare[7] describes a **Native Remedy** for blackwater fever which was brought to his notice as used by the medicine men of East Africa. The remedy consists of a decoction made from the roots of a **Cassia** growing in equatorial East Africa from sea-level up to an altitude of some 2,000 feet. Out of compliment to the discoverer the tree is now named the *Cassia beareana*. The dose is a teaspoonful of the liquid extract of the cassia, and many authentic cases of success in the treatment are recorded from its use.

Treatment of blackwater fever remains a vexed question, many still advocating the use of large doses of quinine, whilst others condemn the drug. Celio[8] maintains that in blackwater fever due to quinine, **Euchinin,** as a rule, gives prompt relief. McElroy[9] states that in his view the procedure which seems to offer the best results is to withhold quinine in blackwater fever, and that an anti-periodic is seldom indicated. He commences with a dose of **Calomel** and, if necessary, **Hyposulphite of Sodium; Morphia** may occasionally act well; **Cardiac Stimulants** are usually indicated, and simple **Diuretics,** but stimulating diuretics should not be given. When oliguria occurs, **Dry Cupping** over the loins and **Normal Salt Solution** hypodermically are efficacious.

Dr. Paul Gouzein's methods of treatment[10] are as follows: (1) If at the end of twenty-four hours of hæmoglobinuria the urine shows no tendency to clear, and the temperature is not above 39° C. (102⅕° F.), a first injection of from 100 to 300 grms. of **Artificial Serum** (7 grms. of sea salt to 1000 of water) should

be given in the thigh. This is given with the idea of stimulating and maintaining the vital energy during the time necessary for corpuscular repair and the restoration of functional equilibrium. Each injection should last from five to fifteen minutes. Ordinarily it is well borne. (2) In cases of moderate severity, Dr. Gouzein also uses with advantage small enemata of the serum of 200 grms. each in the twenty-four hours. (3) He has also employed with success an infusion of **Ahouandeme,** the name given by the natives of Dahomey to the *Cassia occidentalis L.* Whether the preparation acts solely by virtue of its diuretic, diaphoretic, and cholagogue properties, or whether it has a specific action on the pathogenic agent, is at present unknown. In some cases it acts almost at once, the urine clearing and being increased in quantity, with copious stools, followed by rapid convalescence. From January, 1897, to the end of March, 1900, Dr. Gouzein treated fifty-three cases of bilious hæmoglobinuric fever without a single death.

REFERENCES.—[1]*Lancet*, March 23, 1901 ; [2]*La Intossicazione Chinica e l'Infezione Malarica* ; [3]*Brit. Med. Jour.* Jan. 25, 1902 ; [4]*Jour. Trop. Med.* April 15, 1901 ; [5]*Brit. Med. Jour.* Sept. 14, 1901 ; [6]*Ibid.* Jan. 25, 1902 ; [7]*Lancet*, Feb. 1, 1902 ; [8]*Wien. klin. Rund.* Feb. 23, 1902 ; [9]*Memphis Med. Monthly*, March, 1901 ; [10]*Brit. Med. Jour.* Sept. 8, 1900.

BLADDER (Extroversion of). *Keith Monsarrat, F.R.C.S.E.*

In the article on this subject in the *Medical Annual* for 1902 it was shown : (*a*) That the plastic methods available were capable of providing a bladder, but that hitherto they must be considered unsatisfactory, as in no case had a continent organ been fashioned ; (*b*) That considerable functional success had been obtained by methods which diverted the urine into the lower bowel, and that the rectum had been shown capable of holding urine in several cases from three to five hours.

Subbotin[1] has published an account of a method by which he has been able to fashion a continent bladder by providing a sphincter from the rectum. A new channel is formed from the front of the rectal wall, the bladder connected with this and subsequently closed in front. Subbotin's first operation was performed on Nov. 30, 1900. An incision is made from the third sacral vertebra downwards, the coccyx resected, and the posterior rectal wall opened, the anterior rectal wall being thus exposed ; the finger of an assistant invaginates the bladder wall towards the rectum, an incision is made through the intervening

tissue, and the edges of this sutured. Then an incision through the mucous membrane in the form of an elongated horse-shoe encloses the anastomotic opening, and by a series of sutures the area of rectal mucosa thus outlined is formed into a channel (*Fig.* 9). By these sutures the channel is cut off from the rectal space behind, while it communicates with the bladder surface through the opening first made (*Fig.* 10). The last stage of the operation consists in closure of the wound in the posterior rectal wall and overlying tissues. The subject of the operation was a child, aged fourteen years. The healing of the wounds was satisfactory, and on the 9th of January, 1901, the edges of the bladder mucous membrane were freshened and sutured. The bladder thus formed proved continent, and now the child

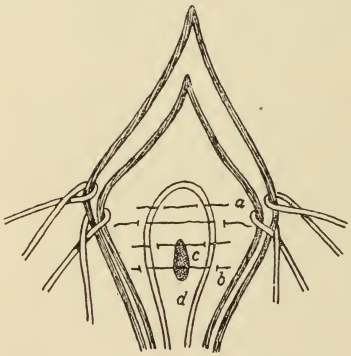


Fig. 9.

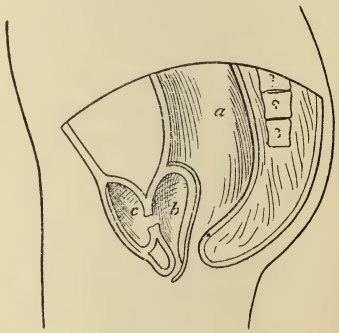


Fig. 10.

passes urine five or six times daily ; the urine channel is quite separate from the rectal canal, and thus the risk of infecting the urinary passages is avoided. Since then a second patient, aged fifteen, has been operated on after the same method with a good result.

Subbotin makes the following observations on his method : "My operation provides a bladder and urethra of normal anatomical structure and satisfactory physiological function. The contents of the intestinal tract cannot by any possibility find their way into the urinary channels, and all infection from this source is avoided. Such infection has been the most serious danger of all hitherto practised methods of bringing the urine into the bowel, in all of which a cloaca has been formed ; the method, therefore, appears to me to possess great advantages."

A review of the results of surgical measures for vesical exstrophy cannot fail to convince that those obtained by the autoplastic methods have been very disappointing; the best have but facilitated the wearing of a urinal. On the other hand, the transplantation methods have provided real successes in many hands. Take for example a case reported by Mr. Pye-Smith.[2] A boy, aged fourteen, had had an unsuccessful flap operation performed when four years old; on Sept. 17, 1901, Peter's operation was performed. Two small catheters were first introduced into the ureters. The right ureter was then exposed by dissection through an incision along the right edge of the extroverted bladder, cut away from the bladder, and passed through a small puncture in the anterior wall of the rectum; the left ureter was similarly treated. The rectum was tolerant from the first, and the patient could very soon retain his urine three or four hours. Another good result reported by Allen,[3] of Cleveland, is as follows: The operation was done on a boy on Nov. 3, 1898, and he was discharged from the hospital well on Dec. 10. After operation he remained in excellent health, had no irritation from the presence of the urine in the large intestine, retained it without difficulty during the day, and from four to five hours during the night. Such successes are substantial, and much more so than any that have been produced by the autoplastic methods. The risk of infection of the urinary channels is however very serious; it has been reported in several cases operated upon by the method adopted by Mr. Pye-Smith in his case. If, therefore, the operation of Subbotin proves to be generally applicable (and there is no reason to believe the contrary) it is a decided advance and improvement on all others.

References.—[1]*Cent. f. Chir.* No. 51, 1901; [2]*Brit. Med. Jour.* vol. i, p. 591, 1902; [3]*Jour. Amer. Med. Assoc.* July 29, 1899.

BLADDER TROUBLES IN WOMEN.

Arthur E. Giles, M.D., B.Sc., F.R.C.S.

Irritable Bladder.—Bierhoff[1] considers that in women irritable bladder, or vesical hyperæsthesia, rarely occurs as a true neurosis. It is generally a symptom of some change in the vesical mucous membrane. In 57 cases of his own, there were only 4 which could be limited to "nervous conditions." The remainder were principally composed of evident cystitis, peri-cystitis, hyperæmia, or uterine mal-positions. The symptoms of the condition are frequency of urination and a varying degree of pain or tenesmus.

If a woman urinates more than five times during the day, or is awakened during the night by the desire to urinate, her micturition becomes abnormal. Pain is a varying symptom, dependent upon the nervous disposition of the patient, and in its estimation such must be taken into account. In diagnosis it is necessary in many cases to examine the bladder with the endoscope. Bierhoff prefers the Nitze-Oberlander form, which he places in a 2 per cent solution of holzin (60 per cent solution of formalin in alcohol) for five minutes. The bladder is thoroughly irrigated with a 1 per cent solution of boric acid. Hyperæmia appears as an abnormal reddening of the mucous membrane, with dilatation of minute blood-vessels ; it is most frequent at the fundus, extending from the ureteral orifices to the posterior part of the urethra. Vesical varices are a frequent cause of increased bladder sensibility. They accompany pregnancy, but in this state it is the larger veins that are dilated. Attention is drawn to a distinct "cystitis papillomatosa," occurring at the fundus, and due to hypertrophy of the papillæ. Pericystitis follows pelvic inflammation, and results in distortions of the bladder, forming saccules in which the urine stagnates. Cystocele, uterine displacements, carcinoma, calculi, and tuberculosis are amongst other conditions in which the irritability occurs. Prognosis is fair except when the parent causes are well marked.

Incontinence of Urine.—Pfannenstiel[2] reported a case in which he adopted Gersuny's plan of peri-urethral **Paraffin Injections** for the cure of incontinence (see "Oil Injections"). Within a few hours the patient had a paraffin embolus in the lung, resulting in a light attack of broncho-pneumonia. Kapsammer[3] describes three cases treated by this method. In two of them injections were made in several places round the neck of the bladder, with the finger in the urethra as a guide. In the third case he made an injection of 8 c.c. in one place near the neck of the bladder in the vaginal wall, the aim being to form a kind of artificial wall around the neck of the bladder in the connective tissue, something like hypertrophy of the prostate in men ; by the cystoscope the vaseline mass appears to project up into the neck of the bladder. A white vaseline of a melting-point between 35° and 38° C. was used.

In discussing these cases, Gersuny said that Pfannenstiel had not carried out his original method in any one particular, so that the case with lung embolism was not to be truly compared

to the other cases published. Embolism might result either from fluid paraffin being injected into a vein, or by the hot paraffin causing a blood-thrombus, of which a part was carried to the lungs. He had used the method in a considerable number of cases without any serious mishap, in spite of the very vascular parts into which he had injected it, such as the peri-rectal connective tissue, the orbit, etc. He used a paraffin melting between 35° and 40° C., and in a semi-fluid condition, so that it issued in a thread, and not in drops, from the point of the needle. If a large mass is to be injected, it must be done in several sittings, at intervals of a week, each time sticking the needle into the paraffin tumour. In this way wounding of veins is avoided, and embolisms do not occur.

Parnell[4] reports a successful result in five obstinate cases in girls from nine to eighteen years of age, by the application of a solution of **Nitrate of Silver** (30 grs. to the ounce) to the neck of the bladder, introduced on a probe covered with cotton wool. Two or three applications were required.

Mundé[5] reports a case in which incontinence of urine was cured by removal of the clitoris in the case of a girl of fifteen who was incorrigibly guilty of masturbation. Before she left the hospital, completely cured of the enuresis, her altered behaviour and facial expression, due to the cessation of masturbation, were plainly noticeable. She remained under observation for about a year, and continued in perfect health. Of course he does not advise clitoridectomy unless it is evident that irritation of the clitoris is the cause of the urinary incontinence. He refers also to a recent report of such an operation by a French surgeon on a woman, twenty-eight years of age; the removal of the almost constantly erect clitoris being at once followed by a complete cure of the urinary incontinence.

Vesico-Vaginal Fistula.—Lapthorn Smith[6] describes a plan he has adopted with success for the cure of this condition. After careful disinfection of the vagina, the latter is incised across in front of the cervix, and the bladder pushed off the uterus in the same way as in the first step in vaginal hysterectomy. In the case he reports the vagina was easily separated from the bladder with the finger everywhere except where the two edges had become united at the fistula. With the finger between the bladder and vagina, it is easy, with a few cuts of the scissors, to separate them from one end of the fistula to the other. This gives a raw edge, and obviates the necessity of cutting away a

particle of either bladder or vagina. The long tear in the bladder in this case was caught with a catgut stitch at either end, taking in only the muscular wall. While these were held on the stretch, the muscular wall was brought together with an over-and-over fine chromicized catgut suture going back fully an eighth of an inch on each side, but taking care not to penetrate the cavity of the bladder, or even to touch the mucous membrane. The slit in the vagina was closed with interrupted silkworm gut passed through the vagina, then through the muscular wall of the bladder, but half an inch to the right of the tear in the bladder, and then through the other side of the vagina, thus displacing the bladder half an inch to the patient's left, so that the line of suturing in the two membranes was no longer in the same place as the line of the tear. Thus the suture of the bladder was strengthened in front by half an inch of solid vagina. A *catheter a demeure* was left in the bladder. By this method no stitches are left in the bladder mucous membrane, which are apt to become the nuclei of calculi. The union of the edges is very firm, while the *catheter a demeure* removes all tension and places the bladder at complete rest.

REFERENCES.—[1]*Amer. Jour. Med. Sci.* Dec. 1900 ; *Brit. Med. Jour. Epit.* Jan. 5, 1901 ; [2]Abst. in *Therap. Gaz.* May 15, 1901 ; [3]*Wien. klin. Woch.* No. 8, 1901 ; [4]*Brit. Med. Jour.* Jan. 11, 1902 ; [5]*New York Med. Jour.* April 6, 1901 ; [6]Abst. in *Med. Rec.* Feb. 22, 1902.

BLOOD (Clinical Examination of).

T. N. Kelynack, M.D., M.R.C.P.

Hæmatology still continues to attract much attention, and the importance of the study of hæmopathology, not only in so-called affections of the blood, but in the solution of many problems of disease, is becoming more apparent. The blood has been described as a tissue in which the cells are represented by the corpuscles, and the intercellular substance by the plasma, but whether such a view be correct or not, it is certain that the blood is readily and extensively influenced by physiological and pathological processes ; and by systematic examination of the blood both in health and disease, valuable data are being accumulated which will go far to strengthen the position of the clinician.

Among recent works devoted to the study of the blood, reference should be made to those by A. C. Coles,[1] J. C. Da Costa,[2] James Ewing,[3] and Professor Limbeck.[4] The work of R. L. Watkins[5] is somewhat of a curiosity, but can hardly be considered

a serious contribution to the subject. Much useful information concerning the methods of examination will also be found in the sections devoted to Blood in the works of W. D'Este Emery,[6] R. Hutchison and H. Rainy,[7] and G. A. Gibson and W. Russell.[8] Zandy[9] has compiled a good summary of recent literature dealing with blood and blood diseases. F. Bezançon and M. Labbé[10] furnish a useful summary and extensive bibliography, and A. Stengel and D. L. Edsall[11] contribute critical epitomes of many recent papers. Useful references to recent work on blood diseases is given in *Schmidt's Jahrbücher*[12]; and Grawitz[13] also furnishes useful summaries of new work. For a clear statement of many physiological points Bunge's[14] work may well be consulted.

In the study of acquired diseases of the blood, it is very desirable that we should have accurate knowledge as to its condition during intra-uterine life. Unfortunately, but little study has been made of the blood of the fœtus. The work of J. W. Ballantyne[15] is therefore particularly welcome, for in it he well summarizes our present information on the subject.

In last year's *Medical Annual* an endeavour was made to indicate the most convenient methods for the speedy and effectual clinical investigation of the blood. There is little to add at present. Among the newer appliances for estimating the hæmoglobin percentage reference should be made to Tallquist's hæmoglobin scale, which has now been introduced into this country.

Much attention still continues to be given to blood examination as an aid to diagnosis and prognosis. The leucocyte count certainly sometimes affords more or less reliable assistance. Hyperleucocytosis usually occurs in such affections as septicæmia and pyæmia, and pyogenic diseases generally, pneumonia, erysipelas, diphtheria, rheumatism, scarlatina, and hydrophobia. In chronic infections like tuberculosis and syphilis a certain degree of hyperleucocytosis appears usually to occur; and in many states of intoxication, as by arsenic, phenacetin, chlorate of potash, pyridin and the like, although destruction of the red corpuscles generally results, more or less hyperleucocytosis has been noted. C. N. Longridge[16] points out that the occurrence of leucocytosis in abdominal affections shows that acute inflammatory changes are occurring, provided that the resistance of the patient is capable of reaction, and the intensity of infection is capable of exciting reaction.

J. C. Da Costa[17] shows that in the catarrhal and interstitial forms of appendicitis without abscess formation the number

of leucocytes does not usually exceed the normal standard of 10,000 per c.mm., but in cases of abscess, gangrene, or general peritonitis the count may be raised to from 15,000 to 20,000 or more per c.mm. If, however, the abscess is effectually walled off increase may not be noted. And where profound sepsis allows of no reaction even leucopenia may occur. A leucocyte count offers no assistance in distinguishing appendicular abscess from ovarian abscess, pyosalpinx, ectopic pregnancy, perinephritic abscess, hepatic abscess, or malignant disease of the cæcum, for in all these affections similar blood changes may occur.

J. T. Hewetson[18] advocates the systematic use of the leucocyte chart in pneumonia. The leucocytosis of pneumonia is said to be due entirely to an increase of the polynuclear finely granular oxyphiles, and probably begins on the first day of the illness. If the patient's reaction is vigorous, and the dose of toxin not excessive, the hyperleucocytosis increases daily, reaching the maximum about the day of crisis. In mild cases the leucocyte curve may anticipate the crisis, but in severe cases it is often maintained for several days after the crisis, and then falls gradually.

Much discussion has occurred as to the source of the leucocytes. Virchow and Ehrlich held that hyperleucocytosis resulted from the stimulation of those organs in which the leucocytes are produced, while von Limbeck, Jakob, and others hold that the chemiotatic bodies generated at the site of the lesion suffice to draw them from their hiding places in the viscera and throw them into the peripheral circulation.

J. M. Bowie,[19] in a study of the leucocytes in scarlet fever, finds that practically all cases show leucocytosis. It begins in the incubation period, very shortly after infection reaches its maximum at or shortly after the height of the fever, and then gradually sinks to normal. In simple uncomplicated cases the maximum is reached during the first week. The more severe the case the higher the leucocytosis. A favourable case in any one variety of the disease has a higher leucocytosis than an unfavourable one of the same variety. The polymorphonuclear leucocytes are increased relatively and absolutely at first, and then fall to the normal, the lymphocytes acting inversely to this. Eosinophiles are diminished at the onset of the fever; they increase rapidly in simple favourable cases, till the height of the disease is past, then diminish, and finally reach the

normal some time after the sum total of leucocytosis has disappeared.

H. M. King[20] finds that an increase of from 5,000 to 10,000 leucocytes per cubic millimetre following operation in from 6 to 36 or even 48 hours is a normal post-operative condition, provided it be not sustained; the maximum leucocytosis in the majority of cases occurs within the first twelve hours after operation, and is very transient; leucocytosis in the normal reparative process bears but slight relation to the pulse and temperature; a post-operative leucocytosis of 10,000 or more above the individual normal, and sustained for more than a few hours, must be looked upon with suspicion; and the apparent increase in the number of erythrocytes following operation is not caused by an actual increase of red cells in the circulating blood.

H. Batty Shaw[21] confirms Richter's and Spiro's observations respecting the occurrence of a general leucocytosis following intra-venous injections of cinnamate of soda.

Hypoleucocytosis is usually noted in typhoid fever, malaria, measles and rubella, acute tuberculosis and influenza.

Leucopenia generally suggests a grave prognosis, as it usually indicates a lack of reaction on the part of the hæmatopoietic tissues, while hyperleucocytosis suggests a favourable outlook, as it seems to indicate an attempt at a protective reaction on the part of the organism.

As bearing on the modes of development and causes of increase in the eosinophiles, W. T. Howard and R. G. Perkins[22] have made an extensive series of observations on the origin and occurrence of cells with eosinophile granulations in normal and pathological tissues. Eosinophilia has been noted in leprosy, and is said to occur after the use of tuberculin. Well marked eosinophilia has been met with in cases of hydatid disease; associated with the presence of such parasites as trichina spiralis and ankylostoma duodenale; and also in Bilharzia disease.

C. E. Simon,[23] in a study on the significance of basophilic granules in red corpuscles, reviews the literature of the subject, shows that it is indicative of the hæmolytic action of deleterious substances upon the blood, and draws attention to the value of the evidence of such blood changes in persons exposed to the action of lead. C. Y. White and W. Pepper[24] also describe granular degeneration of the erythrocytes in cases of chronic lead poisoning and in lead workers without subjective symptoms. And the same writers, together with A. Stengel, show that

such granulation is the result of a peculiar degeneration of the protoplasm of the corpuscle, and does not arise from fragmentation of the nucleus.

C. Price-Jones,[25] in a study of the cytology of the blood in malignant disease, arrives at the conclusion that such is of no diagnostic or prognostic value.

H. Claude and A. Zaky[26] and M. L. Stevens[27] have investigated the blood changes in tuberculosis.

A. C. Abbott and D. H. Bergey[28] have studied the influence of alcoholic intoxication upon hæmolysis.

A useful study of the blood in infancy and childhood will be found in Rotch's work.[29]

A. S. Warthin[30] has recently furnished an elaborate study of pernicious anæmia, in which he devotes special attention to the changes occurring in the hæmo-lymph nodes.

The **Biological Test** for blood recently brought into prominence by Friedenthal, Deutsch, Uhlenhuth, and particularly by Nuttall[31] and A. S. F. Grünbaum[32] in this country, still attracts considerable notice. Grünbaum conveniently indicates the present situation. In a general way it may be said that the serum from an animal—*e.g.*, a rabbit—which has been injected intraperitoneally several times with any given organic fluid will, if mixed in small quantity with a dilute solution of the fluid used for injection, produce a more or less marked precipitate. To such a serum has been given the name "anti-serum." Hence the serum from a rabbit that has been treated in this way with human blood, which gives a precipitate with human blood, may be—although somewhat paradoxically—called "human anti-serum."

K. Ziegler[33] supplies references to convenient summaries of contributions which have appeared on this new biological test for blood.

J. Sailer,[34] in his critical study on diagnosis by means of the serum of the blood, furnishes a useful bibliography.

In regard to the blood in its relation to *immunity*, Professor Welch's[35] Huxley Lecture should be consulted.

REFERENCES.—[1]*Dis. of the Blood*, 2nd ed. 1902; [2]*Clin. Hæmatology*, 1902; [3]*Clin. Path. of the Blood*, 1901; [4]*Ibid.* trans. by Drs. A. Latham and J. Nachbar, 1901; [5]*Diagnosis by means of the Blood*, 1902; [6]*Bacteriological Diagnosis*, 1902; [7]*Clin. Methods*, 1902; [8]*Phys. Diagnosis*, 3rd ed. 1902; [9]*Schmidt's Jahrb.* 1902, Bd. 273, Hft. 2, s. 117-135; [10]*Arch. Gén. de Méd.* June, 1902, vol. vii, pp. 735-760; [11]Gould's *Year Book of*

Med. 1902 ; [12]*Schmidt's Jahrb.* 1902, Bd. 273, Hft. 3, s. 307 ; [13]*Virchow's Jahresber.* 1902, vol. xxxvi, s. 291 ; [14]*Text Book Phys. and Path. Chem.* English ed. 1902 ; [15]*Ante-natal Path.* 1902 ; [16]*Med. Press*, Aug. 20, 1902 ; [17]*Amer. Jour. Med. Sci.* Nov. 1901 ; [18]*Birm. Med. Rev.* Aug. 1902 ; [19]*Jour. of Path.* March, 1902 ; [20]*Americ. Jour. Med. Sci.* Sept. 1902 ; [21]*Jour. Path. and Bact.* March, 1902 ; [22]*Johns Hopkins Hosp. Rep.* vol. x, 1902, p. 249 ; [23]*Inter. Clin.* vol. i, 12th s. 1902 ; [24]*Amer. Jour. Med. Sci.* 1901, vol. cxxii, p. 266 ; [25]*Rep. Cancer Research Lab.* Middlesex Hosp. 1902 ; [26]*Rev. de la Tuberc. July*, 1902 ; [27]*Med. Rec.* July 26, 1902 ; [28]*Bull. Univ. Penn.* Aug. 1902 ; [29]*Pediatrics : The Hygiene and Medical Treatment of Children*, 1901 ; [30]*Amer. Jour. Med. Sci.* Oct. 1902 ; [31]*Jour. of Hyg.* 1901, vol. i, p. 367 ; [32]*Lancet*, 1902, vol. i, p. 143 ; [33]*Centralb. f. Allg. Path.* Aug. 28, 1902, Bd. xiii, No. 14, s. 545 ; [34]*Bull. Univ. Penn.* Aug. 1902 ; [35]*Lancet*, Oct. 11, 1902.

BOILS. (See "Furunculus.")

BRAIN (Abscess of). *Robert Abbe, A.B., M.D.; New York.*
W. Scott Schley, A.B., M.D., New York.

Eagleton,[1] in a search of the literature upon *brain abscess* of otitic origin, found that 84 per cent of the cases were secondary to chronic suppuration, and 16 per cent to acute suppurative disease of the middle ear. Among infants slight fever and gradual loss of flesh were often the only symptoms. The so-called localizing symptoms were unreliable ; outside of aphasia, which was present in 30 per cent of the cases of temporo-sphenoidal abscess, these symptoms should not be relied upon. In about 10 per cent of the operated cases the symptoms caused suspicion of abscess localized in one fossa, when it was found in another. Of cerebellar abscesses, 32 per cent gave symptoms, such as paralysis of the arm, hand, eye, or leg. Out of the 101 operative cases there was failure to locate the pus in 21 per cent. This was due either to pus so thick that it would not pass the exploring needle, or to an unusually thick capsule.

Ruth[2] records several cases of cerebral abscess following middle-ear disease, and especially urges that "in every case of middle-ear disease in which cerebral symptoms develop, accompanied or not by suppression of the discharge from the ear, the skull should be opened and search made for an abscess. The dangerous complications arise from granulation material filling the tympanums, and plugging the drainage point through the perforation of the tympanic membrane and auditory canal." The tympanum must always be kept clear of obstructive granulation tissue. Lewis[3] contributes a case of brain abscess with

extensive bone necrosis and dural involvement. He quotes MacEwen to the effect that, "when the tympanic cavity has become the seat of chronic suppuration, with ulceration of the mucous membrane extending into the antrum and mastoid cells, it becomes a standing menace to the safety of the patient." *Chronic otorrhœa is much too lightly regarded,* and is a dangerous affection rather than a mere inconvenience. These facts are now generally admitted. Nearly all disease of the middle-ear has its origin in some pathological change in the nares or naso-pharynx, through extension along the Eustachian tube or along the lymph channels of this tract. Here should be the first point of attack. Most of the cases of middle-ear disease occur in the earlier decades of life.

Hoppe[4] classifies cerebral abscesses under four subdivisions: (1) Traumatic abscesses caused by an open scalp wound or fractured skull; (2) Abscesses resulting from a purulent inflammation of a bone or bony cavity—(*a*) otitic abscesses; (*b*) rhinogenetic abscesses; and (*c*) abscesses due to caries of the cranial bones; (3) Tubercular abscesses; (4) Metastatic abscesses. The symptoms were referable to three groups: (1) Those due to the suppuration; (2) Those due to increased intracranial pressure; (3) Local symptoms.

McClintock[5] has recorded a case of brain abscess due to the *typhoid bacillus,* and occurring during the course of that disease; a rare complication, but five other cases have been recorded. He finds, after a search of the literature, but 19 cases of meningitis, in all of which the typhoid bacillus was found, and 5 cases of brain abscess, in none of which was it found, occurring as complications or as sequelæ of the disease. In the present case the bacilli were found.

REFERENCES.—[1]*Med. Rec.* Aug. 2, 1902; [2]*Ibid.* May, 1902; [3]*Ibid.* March, 1902; [4]*New York Med. Jour.* Aug. 1902; [5]*Amer. Jour. Med. Sci.* May, 1902.

BRAIN (Injuries to). *Robert Abbe, A.B., M.D., New York.*
W. Scott Schley, A.B., M.D., New York.

Phelps,[1] in a recent paper upon the traumatic intracranial lesions, has summed up the present best position in regard to their management. Basal fractures rarely require intervention. Depressed fractures, even without symptoms, should be elevated. The suspicion of fracture after considerable violence inflicted and hæmatoma formation, even without symptoms of intracranial lesion, should be sufficient to warrant exploratory

incision, which is safe under rigid asepsis. There should be recovery from immediate shock, a fair constitutional condition, and a limitation of the wound to the extent required for the purpose. Even should the osseous depression be limited to the outer table, exploration should be continued. "The danger of an exploratory craniotomy under aseptic conditions is scarcely greater than that of the external incision; certainly not to be weighed for a moment against the greater danger of immediate septic infection, or the remoter effects of pressure or irritation from osseous fragments resting upon or penetrating the brain or its membranes." Abscesses, cerebral necrosis, epileptic attacks, etc., are no infrequent results of a so-called conservative policy. If a fissure is found, the probabilities of comminution of the internal table, if it be open, require deeper exploration. Unfortunately in many cases still more serious injuries contra-indicate operation.

As regards hæmorrhage, it is only when symptoms point clearly to that as the essential, if not exclusive, lesion that operation affords legitimate hope of success. Operations for other forms of intracranial lesion than supradural hæmorrhage are of more limited utility. Damage may occur at the opposite extremity of some cranial diameter as the result of trauma, rather than at the immediate site. This, however, is not apt to be the case with dural hæmorrhage.

The justifiable use of operation in head injuries is limited. It is summarized as properly general in depressed cranial fractures, frequent in comparatively uncomplicated epidural hæmorrhages, and exceptional in subdural lesions.

Lathrop[2] urges early operation in all cases of skull fracture with depression of bone, or where compression symptoms are present. He considers the persistence of concussion symptoms without sign of improvement as indicative of brain injury from fracture of inner table or from hæmorrhage. He would treat fractures of the base, especially of the anterior and middle fossæ, by drainage. Lathrop usually employs the chisel, elevator, and rongeur forceps, more rarely the trephine.

Dwight[3] believes in exploration with signs of intracranial disturbance, following an accident which might well cause such a condition, whether fracture exists or not. Ballard[4] finds that the absence of unconsciousness does not contra-indicate operation, and that the degree of unconsciousness is not in all cases proportionate to the severity of the injury; when it lasts

for more than twenty-four hours operation should be considered.

Robinson[5] urges two things particularly in the treatment of all non-operative head cases : (1) Extreme and immediate care in the antiseptic treatment of all wounds and abrasions of the soft parts ; (2) Extreme care in the feeding and general nursing. Septic and pulmonary complications can be best avoided in this way.

The usual number of cases of brain injury, mostly of successful outcome, have been reported the past year. Wiemuth[6] reports a case of skull fracture in which there was a depression in the temporal region the size of the fist, with projection of almost the entire frontal lobe in addition. Recovery followed. Vaughan[7] finds the greatest mortality in head injuries occurs from such accidents as falling from a height and striking on the head (falls from horses, buildings, etc.). There is usually extensive fracture of the skull, involving both base and apex, with brain lacerations and hæmorrhages into the brain substance. Injuries resulting from blows by clubs, hammers, stones, etc., give the smallest mortality, resulting usually in a limited fracture, with corresponding lesion in the brain. As an evidence of brain toleration, he cites a case of Evans's in which a piece of wood 1¼ inch long and ⅓ inch thick remained in a man's brain, just above the ethmoid, for thirty-two years. He further reports a case of compound fracture of the frontal and nasal bone, with depression of almost the entire frontal lobe. There was also fracture at the base. Recovery followed. He reports further cases, in one of which two ounces of brain tissue was lost, but recovering.

An interesting case of gunshot injury has been reported from the Greenock Infirmary.[8] The bullet entered the frontal bone and traversed nearly the length of the brain. Through drainage was established by a second trephine opening in the occipital bone, a rubber drainage tube passing along the track of the bullet. The X-ray located the bullet, which was removed at the operation. At the time of writing almost complete recovery from a right-sided hemiplegia and aphasia had occurred.

Newman[9] has reported three cases of motor aphasia following head injuries. Two recovered after operation. The third, which had no paralysis or epileptiform attacks, recovered after an unconsciousness of eleven days, without operation.

Since Wharton's paper[10] upon the wounds of the venous sinuses and his analysis of seventy cases, no more complete

study has appeared. Individual cases are recorded from time to time. Dorr[11] reports two cases of thrombosis of the sinuses following injury, both ending fatally. The second case is of particular interest because of the long interval of twelve days from the time of accident to the time serious symptoms developed.

Deansley[12] records the histories of three cases of intracranial pressure from obscure causes treated by **Basal Drainage.** Nothing was removed but cerebro-spinal fluid. In two cases he claims that dangerous symptoms were relieved and death probably averted.

Traumatic surgery, as usual, has scored the greatest successes in the treatment of brain troubles. It has not, however, been so uniformly successful as a perusal of the literature would indicate.

REFERENCES.— [1]*New York Med. Jour.* Jan. 11, 1902 ; [2]*Phil. Med. Jour.* April 12, 1902, from *Ann. Surg.* ; [3]*Boston Med. and Surg. Jour.* July 31, 1902 ; [4]*Ibid.* ; [5]*Ibid.* ; [6]*Med. Rec.* April 26, 1902 ; [7]*Amer. Jour. Med. Sci.* Nov. 1901 ; [8]*Scot. Med. and Surg. Jour.* Feb. 1902 ; [9]*Lancet*, July 26, 1902 ; [10]See *Medical Annual*, 1902 ; [11]*Munch. Med. Woch.* Feb. 18, 1902 ; [12]*Lancet*, Nov. 1901.

BRAIN (Tumours of). *Robert Abbe, A.B., M.D., New York.*
W. Scott Schley, A.B., M.D., New York.

Collins[1] has reported some interesting cases of *brain tumour.* He finds medical treatment of no value except in the gummatous variety. Scarcely more than one case in twenty is amenable to surgical interference. This, he states, is quite a different position from that held a few years ago, when it was demonstrated that the skull could be opened and tumours removed. Experience has shown that owing to malignancy, infiltrating and diffused growth, or to their position, the majority cannot be satisfactorily dealt with. The trend of testimony is to show that the surgical field of usefulness is larger in spinal cord tumour than in brain tumour. He considers cord tumours more difficult of diagnosis than those of the brain, the latter being "almost constantly attended by a symptom group made up principally of headache, vertigo, vomiting, hebetude, apathy, staggering, spasm, or paresis of an extremity, and optic neuritis, which can scarcely be paralleled by any other condition." The cord tumours have no such constant clinical picture, and require a more minute and careful analysis for diagnosis. The study of brain tumours is constantly adding to our knowledge of the functions of the brain, to readiness of diagnosis, and thus to earlier treatment.

Elder and Miles[2] reported the successful *removal of a tumour* of the left pre-frontal lobe. They found that but very few of the successful operations in cerebral surgery had been performed for tumours. This was due to the fact that very few could be removed even if accurately located. Starr's table of 1100 cases with 7 per cent reported as "probably removable" is quoted. In the case recorded the tumour (a syphiloma) occupied one of the latent or silent regions of the brain. The principal symptoms were referable to an interference with the higher inhibitory control, or want of exercise of the power of inhibiting the organic reflexes; diminution of the sense of shame; diminution or loss of the faculty of sustained attention; diminution of fixation in memory; inability to contrast and compare. The tumour ($2 \times 1\frac{1}{2} \times 1\frac{1}{4}$ inches) was easily shelled out. The cavity left was "immediately filled by the brain matter bulging into it."

Stewart[3] reports the successful removal of a sub-cortical glioma of the lower part of the left ascending frontal convolution. The patient complained of temporary attacks of complete loss of speech, being unable to utter a word or sound. During these attacks he understood perfectly what was said to him, and knew what he desired to say.

McCaskey and Porter[4] also record the successful removal of a gliomatous tumour the size of a pullet's egg from beneath the leg centre. It was enclosed in a capsule, which was easily separated from the brain tissue. Ten months later the patient gave every evidence of making an entire recovery. Putnam and Williams,[5] in a lengthy memoir on tumours of the corpus callosum, include records of all the cases (38 in number) known to medical literature.

Merkleiv[6] records a form of headache which appears on, and is intensified by, exertion; it is accompanied by a rigidity of the neck, and is regarded as characteristic of cerebellar tumour. The cause of the headache is intracranial tension from hydrocephalus of the ventricles. The tumour lying under the tentorium cerebelli compresses the veins of Galen and causes the dropsy of the ventricles. Piollet[7] reports two cases of cerebellar tumour. One, a glioma of the left lobe, was removed with marked and persistent improvement. A table of 48 other cases of tumour or tuberculous growth of the cerebellum, removed by operation, is appended. The results are such as to lead to unfavourable conclusions with regard to surgical interference in these cases. In 20 cases death was the immediate result of

the operation. Improvement is noted in 16 cases, but in many was followed by recurrence of the more severe symptoms, and in some by early death. An almost complete cure is recorded in 4 cases, and a rapid and presumably complete cure in only a single case.

Mills and Pfahler[8] record a tumour of the brain in which the position was accurately determined by the **X-Ray.** It is claimed that this is but the second case in which the position of a brain tumour has been accurately determined by the X-ray during the life of the patient.

Edinger[9] reports a case of melano-sarcoma of the right temporal lobe. The tumour was found to be practically co-extensive with the lobe, which consequently was removed entire. The disturbances following such an extensive mutilation were wonderfully slight; total right hemiplegia immediately after the operation, with only traces remaining, however, at the end of five weeks. The patient died suddenly nearly three months later, and after discharge from the hospital. Reiman[10] records a medullary sarcoma of the diploe of traumatic origin. Recovery followed.

An interesting article upon the recovery from symptoms of tumour of the brain appeared in the *Polyclinic*.[11] It says, there are certain cases in which at *post-mortem* tumours are discovered though giving no symptoms during life, and further, that there is good reason to believe that not a few cases of tumour of the brain cease to grow, and that the symptoms dependent on it subside, the patient making either a complete recovery or, perhaps more frequently, regaining his general health with loss of sight due to optic atrophy. Such cases are usually found in children or young adults, in whom it may be presumed the tumours are tubercular in character. Cases presenting such cardinal symptoms as headache, vomiting, and double optic neuritis may suffer prolonged and serious illness, marked by extreme symptoms of obviously cerebral origin and extending often over several months, and yet terminating in restoration to health. Permanent loss of sight is the usual or frequent result, however. These cases are often, in the earlier stages, diagnosed as meningitis. Occasionally the diagnosis of tumour has been confirmed by a *post-mortem* following the death of a patient at a more or less remote date. The case recorded by Monro is cited: The patient, a man of sixty-three years, died of malignant disease of the stomach. For many years he had

been an inmate of a blind asylum, and "attributed his loss of sight to a severe illness which occurred when he was sixteen years of age, and which confined him to bed for many months." At autopsy "a shrivelled myxomatous tumour almost replacing the left half of the cerebellum" was found, with atrophy of the optic commissure and nerves. These circumstances suggest that enquiry and investigation might profitably be pursued among the inmates of asylums and homes for the blind.

REFERENCES.—[1]*Med. Rec.* Feb. 1902 ; [2]*Brit. Med. Jour.* Feb. 1902 ; [3]*Mont. Med. Jour.* Jan. 1902 ; [4]*Phil. Med. Jour.* from *Jour. Amer. Med. Assoc.* Jan. 1902 ; [5]*Brit. Med. Jour.* from *Jour. Nerv. and Ment. Dis.* April, 1902 ; [6]Reported in *Lancet*, Oct. 1901 ; [7]*Brit. Med. Jour.* (from *Arch. Provinc. de Chir.*), Feb. 22, 1902 ; [8]*Phil. Med. Jour.* Feb. 1902 ; [9]*New York Med. Jour.* Aug. 1902, from *Deut. Arch. f. klin. Med.* ; [10]*Phil. Med. Jour.* Aug. 1902, from *Zeits. fur Heilk.* ; [11]*Polycl.* Jan. 1902.

BRIGHT'S DISEASE. (See "Nephritis.")

BRONCHITIS. *H. P. Loomis, M.D., New York.*

Although it is well known that the regional lymphatic glands in the course of inflammatory affections of the bronchi react and become enlarged, the condition of the *lymphatic vessels in chronic bronchitis* is hitherto undescribed. Watanabe[1] has investigated 32 cases of chronic bronchitis of different types and severity, and finds that by the naked eye the lymph channels concerned can be seen as fine grey streaks and tracks, especially prominent at points of intersection. Microscopically the lymph vessels are seen to participate in the inflammatory process, the fine vessels in the walls of the bronchi to a greater degree than the larger channels. From the periphery to the glands the process decreases in intensity ; it is almost always of an acute character, but rarely are there found changes of a chronic character. In cases of simple chronic bronchitis the lymphangitis was least marked ; when the bronchitis was complicated with other affections, especially broncho-pneumonia, it was much more pronounced and diffuse.

Dr. Campbell, of the North-West Hospital, London, in an interesting paper on "The treatment of chronic bronchitis" in the elderly and aged, briefly sums up the chief points of his paper as follows : (1) In treating chronic bronchitis in those past middle life the toxicity of the blood should be kept as low as possible ; (2) The air breathed should be pure, and nasal breathing insisted on ; (3) The diet should be a bare sufficiency,

and alcohol and malt indulged in sparingly, or not at all ; (4) Every ounce of superfluous fat should be got rid of ; (5) The general health should be maintained at the highest possible level ; (6) A vigorous circulation should be maintained ; (7) Every precaution should be taken against breathlessness ; (8) Breathing exercises should be resorted to, in order (among other things) to preserve the mobility of the thorax.

Cases of *fibrinous bronchitis,* or plastic bronchitis, or bronchitis pseudo-membranosa, or bronchial croup, are as interesting as they are rare. Dr. Berhmann, of the Johns Hopkins Hospital, has tabulated all the cases that have been reported since 1869, in French, German, English, and American journals and monographs. The cases reviewed fall into nine groups :—

(1,) Chronic bronchitis, with expectoration of branching casts of the bronchial tree : 27 cases.

(2,) Acute bronchitis with expectoration of branching casts of the bronchial tree : 15 cases.

(3,) Cases in which branching casts were not expectorated, but were found in the bronchi at autopsy : 6 cases.

(4,) Cases in which the casts expectorated showed no dichotomous branching : 11 cases.

(5,) Expectoration of branching casts in cases of organic heart disease : 10 cases.

(6,) Expectoration of branching casts in cases of pulmonary uberculosis : 14 cases.

(7,) Expectoration of small casts, often non-branching, in association with asthma : 5 cases.

(8,) Formation of casts in the bronchi in association with pulmonary œdema following thoracentesis : 4 cases.

(9,) Cases whose classification is doubtful because of incomplete reports : 6 cases.

He reports the case of a young coloured woman who during a slight attack of bronchitis following confinement, expectorated on the eleventh day a large cast which he photographed, and which represents a veritable bronchial "tree" about 12 cm. in height. In the intervals between the attacks there was some slight respiratory distress, and an evening temperature ranging between 100° and 101°. Only on a few occasions did the temperature reach 101°, so that a uterine culture was not taken, but puerperal infection could be definitely excluded by the absence of local signs. She had a slight cough, and occasionally expectorated smaller casts, which caused her very little dis-

comfort. On one occasion a to-and-fro vibrating sound was heard on expiration in the right axilla. This corresponds in character to the "ventilgeräusch" of the Germans. The urine was negative throughout. The patient continued to have a slight cough and dyspnœa, and slight evening temperature, and left the hospital in spite of protests on October 10th. She remained in Baltimore for three weeks after her discharge from the hospital, and had frequent attacks of violent coughing, in which she expectorated "tree-like things" (as described by a friend). She then went to her home in Virginia, where she died two weeks later. No data as to cause of death are obtainable.

REFERENCE.—[1] *Virch. Arch.*, bd. clxv, heft 1.

BUBO. *J. W. Thomson Walker, M.B. Ed., F.R.C.S.*

Dr. H. M. Christian[1] is firmly impressed with the belief that fully 50 per cent of buboes, other than tubercular, can be successfully aborted if the treatment he recommends is employed early in the case, prior to the formation of pus. Too little attention is paid, he considers, to the **Abortive Treatment** of buboes in surgical text books, which discuss only the operative treatment of the condition. Dr. Christian's method consists in the application of the following ointment (**Ung. Hydrarg. Ung. Belladonna, Ichthyol, Lanolin**, of each ʒij) spread on a piece of surgical lint. Over this is placed a piece of oiled silk of the same size. A large pad of cotton wool is next applied, and firm continuous pressure is obtained by the application of a spica bandage to the groin. This is re-applied every second day until resolution occurs—usually a period of from ten days to two weeks. Twenty cases were thus treated in the Philadelphia polyclinic, and 12 of these were successfully aborted; 8 of the cases following gonorrhœa, and 4 accompanying chancroid. Of the 8 cases where the abortive treatment failed, 6 were cases of tubercular adenitis. In these it was, however, early apparent that surgical measures should be resorted to.

In criticising the methods advocated in a perfunctory and half-hearted manner in the text-books for the aborting of buboes, the author remarks that one of the oldest and most effective is **Rest** in the recumbent position in bed, with constant pressure over the gland from some heavy weight, such as a bag filled with shot. The difficulty of keeping the patient in bed is the chief obstacle in carrying out this line of treatment. The time-honoured measure of painting a ring of iodine around the gland is valueless. Repeated **Massage** of the gland with **Compound**

Iodine Ointment has much more to recommend it, the chief drawback being the dermatitis produced, which interferes with the treatment before resolution of the gland can occur.

Hypodermic injections of **Carbolic Acid** into the gland have been strongly advocated by M. K. Taylor,[2] by whom 30 to 40 drops of a 2 per cent solution are injected directly into the gland. Welander recommends the following solution for the same purpose: **Benzoate of Mercury** 1·0, **Chloride of Sodium** 0·,3 distilled water 100. Two syringefuls (the size of the syringe is not indicated—Ed.) of this solution are injected into the substance of the gland.

References.—[1]*Therap. Gaz.* Aug. 15, 1900; [2]*Amer. Jour. of Med. Sci.* April, 1882.

CALCULUS, Oxalic.

Prof. Robert Saundby, M.D., M.Sc., LL.D., F.R.C.P.

At a meeting of the Berlin Medical Society Klemperer[1] pointed out that it is practically impossible to eliminate from the diet of a patient all articles of food susceptible of producing oxalic acid, as this would amount to entire abstinence from meat and vegetables. It was, therefore, better to give such patients drugs capable of dissolving this acid, and consequently of preventing its precipitation. With this object in view the speaker recommended the salts of **Magnesia**; in addition he forbade milk (which is rich in lime, but poor in magnesia), eggs, and all vegetables containing much oxalic acid; but, on the other hand, he allowed meat, fat, dry vegetables (haricots, lentils), and starchy foods. This diet must be supplemented by the daily administration of 30 grains of **Sulphate of Magnesia.**

Senator expressed his concurrence with the view of Klemperer, and said that the oxaluria of young persons was probably explained by the milk diet which predominated at the early part of life.

Reference.—[1]*La Sem. Méd.* 1901, p. 422.

CANCER. *R. Hutchison, M.D.*

Discussing the alleged *increase of cancer mortality*, Major[1] admits that it is difficult to deny that a real increase of cancer has occurred in late years. There is, however, some truth in the contention of Newsholme[2] that some of this is only apparent, and due to more perfect diagnosis and notification. On the other hand, Sir William Banks (Lettsonian Lectures for 1900) states specifically that he is unable to consider Newsholme's

contention well founded, and expresses the belief that increase of cancer must certainly be held to have occurred. Continental opinion also favours this gloomy view. Major, however, freely admits that imperfect certification seriously invalidates all statistical calculations, and pleads for greater care and accuracy in this respect and more frequent *post-mortem* examinations.

Etiology.—As regards the causation of cancer, pathologists are still divided into two opposing groups : (1) Those who believe that the disease is due to extrinsic causes—practically to a parasite ; and (2) Those who are of opinion that the occurrence of malignant growths can be explained by purely intrinsic causes inherent in the normal cell itself.

Coley[3] is a supporter of the parasitic theory. He bases his belief on the following clinical grounds : (1) The increase of cancer in recent years is difficult to explain on any other grounds ; (2) The local prevalence of cancer in certain districts is in favour of the same view ; (3) The power of cancerous tissues or fluids to infect neighbouring tissues by contact can also be best explained on the parasitic theory ; (4) So also can those cases in which one individual appears to have been directly infected from another. The laboratory evidence in favour of this view is founded upon the finding of apparently parasitic bodies in cancerous growths. Some have regarded these as protozoa, others as blastomycetes, and many high authorities have pronounced them to be parasites and not cell degenerations. Complete proof that these are the cause of cancer is however still lacking, largely because it is so difficult to obtain the bodies in pure culture with a view to inoculation experiments. San Felice obtained pure cultures of blastomycetes from cancer. With cultures of a similar organism from fruit he inoculated a dog, and produced a typical adeno-carcinoma with metastases. Leopold, also, has isolated pure cultures of a blastomycete from ovarian carcinoma, which he injected into the testicles of a rat with the result of producing a large number of peritoneal nodules—not, however, carcinoma—but which caused the death of the animal.

Ribbert[4] is one of the leading opponents of the parasitic theory, and gives his reasons for this position. He says that the production of carcinoma is supposed to depend on some stimulus which causes an overgrowth of cells of the epithelium. There is no reason, however, to presuppose that this stimulus takes the form of a parasite. The parasitic theory claims that

not only is the growth caused by the organism, but that its further development depends on the continued activity of the same. The process would correspond to a kind of symbiosis, in which the living causal agent can only vegetate in epithelial cells. This would mean that the agent would damage the cells ; but how a damaged cell should produce cell proliferation and not degenerative changes he cannot imagine. Further, the parasite, once having attacked a cell, must produce its effect on that kind of cell only, and in fact be incapable of existing in any other cell. There would, therefore, have to be as many species of parasites as there are different kind of cells. It is difficult to believe that this is so. Again, as soon as the original point of infection is overstepped, further growth takes place solely from the cells already composing the cancer. According to the theory, other cells of the same histological character would have to be continually infected. He thinks that when the tumour grows in the immediate neighbourhood of cells of the same character, if it depended on a parasitic invasion, these neighbouring cells must be also invaded, but this does not take place. He compares the pathological characters of a new growth with those of an inflammatory growth, and claims from the comparison that the former begins as an inflammatory lesion of the connective tissue. Parasites could produce such a lesion, but they could not call forth the cell proliferation, which he explains mechanically. He disputes Behla's statements that cancer is an infective process, and that the increase of the disease can only be explained in this way, and doubts whether the increase actually is taking place. He considers that faulty diagnosis without the help of necropsies has much to answer for, and even if there be a real increase, this may be explained by faulty hygienic conditions, etc., without the interpolation of parasites.

Leyden[5] attempts to refute Ribbert's objection to so small an organism as a blastomycete being able to produce such profound changes. He describes a disease of plants recognized by Russian botanists, which presents certain resemblances to cancer. Thus an enlargement has been found on the roots of cabbages, which has been proved to have a connection with an intracellular parasite. From this plasmodium groups of spores result, whose change into amœbæ has been observed outside the plant. He considers the influence of cancer on metabolism, namely, the cachexia, increase of urea excretion,

etc., to be further evidence of parasitism, but admits that infectivity has not been directly proved.

The Cancer Committee of the Harvard Medical School has issued its first Annual Report.[6] Nichols examined forty malignant tumours for the presence of Ruffer's cancer bodies ; of these thirty-five were cases of carcinoma, and Ruffer's bodies were detected in seventeen ; while four were sarcomata, and one was a lympho-sarcoma, and in these Ruffer's bodies were not found. Nine rabbits and three guinea-pigs were inoculated with pieces of carcinomatous tissue, but so far without result. Cultures were made from thirteen cases of cancer of various kinds ; in three ordinary pyogenic organisms developed, the result of contamination ; the remaining ten remained sterile. Cultures of their blastomycetic organisms having been furnished by San Felice and Plimmer, inoculation experiments were carried out with these. Some of the animals inoculated suffered from a blastomycetic infection with the formation of nodules, but the blastomycetes in the experimental nodules did not correspond to those of typical cancer-bodies. The nodules were composed of proliferated connective tissue cells and newly-formed blood-vessels, but no tumour resembling cancer of human beings was produced. Typical cancer bodies were never found in epidermoid cancer. Greenhough also carried out an investigation on the cancer bodies. These were found in each of twenty-three cases of breast cancer. They were more numerous in the periphery of the tumours and in the metastases. They were not found in areas which had undergone even slight degeneration, and were more numerous in slow-growing, and less so in rapidly-growing, carcinomata. They were more numerous in scirrhous than in medullary or adeno-carcinoma types. They were not found in three cases of the epithelioma type, one being a case of Paget's disease. They were present in one case of ovarian carcinoma, and absent in another of general peritoneal cancer, probably of ovarian origin. Richardson made a number of culture experiments with carcinomatous tissues. The media employed were various : carcinomatous bouillon, made by boiling minced carcinoma tissue with the addition of glucose and tartaric acid, serum, plain bouillon, and agar. Aerobic and anaerobic cultures were used, and scrapings, pieces of the tumour, and the secondary deposits in the glands, etc., were employed for inoculation. Twenty-one cases were examined, many cultures being made from each case from different portions

of the primary and secondary growths, and the cultures were examined for ten days or longer periods. In no case was any organism cultivated which could be regarded as a specific infecting organism.

Voelcker[7] also criticizes the experiments by which Schüller believes that he has established the parasitic origin of cancer. Schüller claims for his organisms, first, that they live ; secondly, that they multiply ; thirdly, that they are regularly found in the growths ; and, fourthly, that they produce similar changes in animals. Voelcker takes these points singly. To prove that they live, Schüller says that they, at times, possess fine threads, with which they catch up granules floating past them ; and, further, only the young organisms have movement, but this is very slight. Voelcker fails to recognize any proof here of the life of the so-called organisms. As to multiplication, Schüller states that one only needs use a few drops of lavender oil or some such medium to demonstrate them in the tissue in crowds. Voelcker replies that if this be so it is a disgrace that pathologists or even students have not discovered them over and over again. The parasites are described as relatively large golden brown globes, with a bright appearance. The brown colour is due to a pigment. Sometimes the globes contain "air vesicles," and the protoplasm is finely granular, and is invested with a capsule. Voelcker followed the directions minutely, and sought in vain for "golden globes" in fresh preparations, in cultures, and in old spirit-preserved specimens. After a considerable number of fruitless attempts he happened to hit on an idea in again perusing Schüller's work. He dabbed the objective of his microscope with the cork of a bergamot oil bottle, which had not been used for a long time, and immediately the whole field was filled with countless golden-brown globes, partly filled and partly empty. He describes fully how in every respect these bodies, which are only cork cells in some oil medium, and neither parasites nor yet even present in the growths supposed to be examined, gave the chemical reaction which Schüller describes for his organisms. Neither give the cellulose reaction, and both stain yellow with a concentrated solution of caustic potash, which colour deepens with heating. He failed to find any young "organisms."

Schüller[8] answers these criticisms, and maintains that they will not explain his descriptions of cultures and sections, and that as a matter of fact he used in his researches stoppers of gutta-percha

and glass, and methods in which contamination with cork cells was highly improbable. Since the publication of these criticisms, he has used the most scrupulous care to exclude the possibility of such accidental contamination, but in spite of this the forms previously described, large capsulated cells and small spherical "young" forms, have been constantly found. He repeats his former view that the large forms represent a resting stage in the life history of the organism, and that the young forms are those actively concerned in the cancerous process; they are found both within and between the cells, and the stages of their development into the large forms can be traced. That these young forms are not leucin, he holds is proved by his observation of their powers of movement and contraction, and they do not behave as leucin in the presence of alcohol and heat. Lastly, he draws attention to the experimental inoculations and their results, described in his first monograph; the changes produced are there described as of typical carcinomatous character, and this view he reiterates.

Treatment of inoperable cancer.—Cooper,[9] after reviewing the different remedies which have been recommended in this condition, arrives at the following conclusions :—

(1,) That in cases of inoperable sarcoma, more especially the spindle-cell variety, the patient should have the option of **Coley's Fluid** given to him, since a certain number of cases have been cured.

(2,) That in cases of inoperable cancer of the breast in women of about forty years of age, in whom the menopause has not occurred, the operation of **Oöphorectomy** should be proposed, and this treatment may be combined with **Thyroid** feeding.

(3,) That in cases of inoperable rodent ulcer, and in the superficial malignant ulceration in other parts, the **Röntgen Rays** give a good hope of improvement.

(4,) That in cases where these other methods are declined or are inapplicable, the internal administration of **Celandine** is worthy of trial, and when the case appears quite hopeless morphia should be pushed without hesitation.

(5,) Finally, that before trying any of these remedies the risk should be fully pointed out to the patient; that the faint hope that most of them afford should not be magnified, and that the discomfort of treatment should be fully discussed; in fact, the surgeon should not do more than offer the treatment and leave the patient to accept or reject it.

A discussion on this subject took place at the West London Medico-Chirurgical Society on February 7, 1902.[10]

Mr. McAdam Eccles, in opening it, said that to feel in a case of cancer that there was nothing further that could be attempted by operation, was a condition which was the despair of the patient and of the surgeon. Therefore, if there were any other means that could be taken from a non-operative local point of view, he thought it would be a good thing to have them discussed. In a case of recurrent carcinoma of the mamma the steady progress of the disease was ever before the eyes of the patient, and anything that could remove the surface disease would be a relief to the mind, and death would be rendered easier even if it were due to visceral deposit. In a considerable number of surface carcinomata of recent growth, the new treatment by the **X-rays** had apparently been successful. Double **Oöphorectomy** had been followed without any shadow of doubt by most happy results in a certain number of cases, and yet in others the result had been equally disappointing; the operation was therefore practically an experiment. Life might be prolonged and rendered not only endurable, but actually pleasant, by the disappearance of all visible growth.

Mr. Stanley Boyd said that he had used chiefly **Oöphorectomy,** and had not given **Thyroid Extract** until he had been fairly certain that the oöphorectomy had failed. He had endeavoured to find out what oöphorectomy alone could do, and, unfortunately, had had plenty of opportunity of seeing what thyroid could do when oöphorectomy had failed. The effects of a successful oöphorectomy were relief of pain, softening, shrinking, and disappearance of nodules, and marked improvement in health. If recurrence took place, that recurrence came when the patient was really in a very fair condition, and she started at a much higher level again, and it took longer for the disease to kill her. There was only one thing which he could think of as a possibility other than the oöphorectomy producing that effect, and that was that the **Abdominal Section** caused the improvement; but he did not think that that was the case. Out of forty-six oöphorectomy cases, seventeen, or about 35 per cent, showed marked improvement. The results of this treatment on inoperable cases could be compared with the treatment by **Coley's Fluid** of inoperable sarcoma. Out of 148 cases operated upon by Coley, 12 per cent remained free of disease at periods from one to six years. These results were not so good as the results from

oöphorectomy. There were some points upon which they might dwell as indications. The first thing was that it was only in cancer of the breast that oöphorectomy, so far as was known, was of any influence at all. The next was that the mere mass of disease present, provided that it was local, was not a contra-indication to operation. Also cancers of slow growth had yielded better results than acute cancers. The next point was that more good results seemed to have been obtained after forty years of age than before. Further, it had to be remembered that obvious lesions of the viscera and bones had never been known to disappear after oöphorectomy, but it was possible that unrecognized nodules which were small had disappeared, and it was also possible that the growth of some of these visceral troubles might have been controlled or retarded by oöphorectomy. Lastly, complete re-establishment of the menopause had not proved to be a contra-indication to the treatment. Consequently, if they wanted to get the best results, so far as could be seen at present, and did not want to make what he might call experimental operations—because all were more or less experiments—they should take women of forty who were still menstruating, with cancers of chronic type and with only local recurrence. Dr. Beatson had asked whether the time had not come when oöphorectomy should be the primary operation for the treatment of cancer of the breast, either alone to replace the local operation, or in combination with the local operation. He did not think the operation was to be trusted alone. He knew of nothing from the study of the cases to lead him to suppose that it was the earliness of the oöphorectomy which did good. It was in the cases which were proved to be of a chronic nature that the best results had been secured. In regard to the **Thyroid Treatment** he had never seen any good result from it, but he had observed the health depressed by it. Cases of cancer of the cervix had been more commonly reported as apparently affected by the thyroid treatment than cancer of the breast. With regard to the **X-rays,** he thought they would get some good results from this method of treatment.

Mr. Henry Morris pointed out that many patients had been condemned from time to time by really able and competent practitioners as suffering from "inoperable cancer," who were really not cases of malignant disease at all. There had been many cases admitted under him into the cancer wing of the Middlesex Hospital, where only cases of inoperable cancer were

supposed to be admitted, several of which had been treated for years, and some of which had been in other London or provincial hospitals, yet which were really not cases of cancer at all. A striking instance was that of a fine, stalwart man who stated that he had been an in-patient at one of the large London hospitals and also at the Cancer hospital, where his case was regarded as one of advanced cancer of the rectum unfitted for removal. The condition was really a long-stalked, pear-shaped polypus, and the man soon left the Middlesex Hospital quite well after removal of the tumour. In palliative treatment **Morphine** was the most general panacea ; but though it relieved the pain and tended thus in one way to prolong life, yet it added considerably to the loss of appetite, and caused anæmia and emaciation. For nausea or vomiting, he had found the two most effective remedies were **Oxalate of Cerium** and **Cocaine,** in grain pills given once or twice a day half an hour before food. For correcting the fœtor of discharges, one of the best applications he had found was an ointment or a suppository containing **Vaseline, Eucalyptol,** and **Iodoform.** As regards the various special remedies now being much tried, he had seen no cure from any of them. He had employed Coley's fluid, but owing to constitutional disturbance patients had declined its continuance. Many years ago Campbell de Morgan used to point to cases in which cancerous ulcers had healed during and after an attack of erysipelas. The **X-rays** produced a change in the cell structures, so that healing occurred, pain was relieved, and the discharges were diminished in amount and improved in character ; but in no case which he had seen had the healing been sound and permanent.

Dr. C. Ryall said he had abandoned Dr. Beatson's operation owing to the bad results he had obtained. There was no doubt, however, that the mere **Abdominal Section** had a great effect. It probably set up some tissue change not altogether understood. In his own personal experience he had most satisfactory results from these simple exploratory sections.

Dr. Herbert Snow said that epithelioma on the wrist or on the foot was very tardy in infecting the lymph glands in the axilla or groin. On the observation of this phenomenon he formulated the principle that the nuclear cells or infective particles of carcinoma must be destroyed either in the lymph current on their discharge to the glands, or by the cells in the glands, or by some secretion in the glands. He could explain the phenomenon on no other principle. Referring to the use of **Morphine**

he quoted a case of his own, a lady aged thirty, who had carcinoma of the breast, who was treated after operation with morphine, and lived for more than six years, the cancerous nodules softening and gradually disappearing.

Webb[11] has stated some rather remarkable results in the treatment of cancer by the **Local Injection of Soap Solution.** He prefers Allen and Hanburys' superfatted soap, but common yellow bar soap will do. A bit should be dissolved in boiling distilled water and then strained through silk or fine calico. Not more than a drachm should be injected at a time, for if more is given shivering and collapse may occur. The patient should lie down for an hour or so afterwards. It is best to operate under nitrous oxide anæsthesia, and to inject at first every day, and as the case improves at longer intervals, until once every ten days suffices. On only one or two occasions have the injections set up an abscess. His theory is that malignancy is due to the *crystallisation of cholesterine* from the living cell, and that the soap acts as a solvent. He has had several cases in which the growth seemed to disappear under this treatment, and he pleads for a fair trial of it.

Serum Therapy in Carcinoma.—Experiments have recently been published by Von Leyden and Blumenthal[12] on the treatment of carcinoma by **Serum,** on lines first suggested by Von Dungern. Emulsions of carcinomatous growths from dogs were injected into rabbits for several weeks, and a serum prepared from the rabbits' blood. The effects of this serum were studied upon a dog suffering from indubitable carcinoma, and resulted in shrinkage and softening of the growths and fatty degeneration of the carcinoma cells, while in one instance the tumour completely disappeared. Encouraged by these results the treatment was applied in 3 cases of carcinoma in human beings, the expressed juice of a freshly excised tumour being used as the serum. In two of the cases it was observed that although the tumour itself underwent no striking alteration, yet no metastases developed during the continuance of the treatment, and the enlarged glands in the neighbourhood disappeared. In the third case, one of inoperable carcinoma of the uterus, the general condition improved considerably, and life appeared to be prolonged by the injections. The authors are of opinion that although these results are not very encouraging as yet, they call for further investigations along the same lines.

Hoyten[13] has placed on record the results of a similar plan

of treatment, which he put in force in one case five years ago, using the expressed juice of a carcinomatous tumour mixed with saline solution. The injections lasted over a month, and although no difference in the growth resulted, yet the infiltrated glands cleared up wonderfully, and the pain practically ceased. A second case, treated by the expressed juice alone without the addition of saline, resulted similarly. He also pleads for a more elaborate trial of the method.

REFERENCES.—[1]*Brit. Med. Jour.* July 20, 1901 ; [2]*Pract.* April, 1899 ; [3]*Therap. Gaz.* Feb. 1902 ; [4]*Deut. Med. Woch.* Nov. 21, 1901 (in *Brit. Med. Jour. Epit.* March 1, 1902) ; [5]Trans. of German Med. Cong. (in *Brit. Med. Jour.* April 26, 1902) ; [6]Abstr. in *Treatment*, Nov. 1901 ; [7]*Deut. Med. Woch.* July 25, 1901 ; [8]*Cent. f. Chir.* No. 8, 1902 ; [9]*Lancet*, Oct. 12, 1901 ; [10]*Brit. Med. Jour.* Feb. 15, 1902 ; [11]*Lancet*, Oct. 12, 1901 ; [12]*Deut. Med. Woch.* Sept. 4, 1902 ; [13]*Brit. Med. Jour.* Oct. 25, 1902.

CANCER OF THE BREAST. *Priestley Leech, M.D., F.R.C.S.*

No great steps forward have been made in cancer of the breast since last year, but one or two surgeons have published statistics which support what is already known, *viz.*, that the three years' limit without recurrence can be obtained in a good proportion of cases if free removal be done, and that recurrence may take place after more than three years, so that a case cannot be regarded as cured if it has passed the three years without recurrence. Le Dentu[1] gives the results of 53 cases of amputation of the breast for malignant disease. The hospital cases he has done have not been included, but in these he has only had two deaths in thirty years. Out of the 53 cases on which his paper is founded there had been no deaths from operation ; 36 are dead, and 17 are still living. Out of 53 cases, 26 survived without return of the disease for more than three years, *i.e.*, 49·05 per cent ; 19 have remained without recurrence for three years, *i.e.*, 35·84 per cent ; 6 cases have survived between ten and fourteen years. Le Dentu has operated for some time as follows : Free removal of skin regardless of the possibility of making the edges meet ; removal of the mamma and axillary contents in one piece ; removal of the aponeurosis of the pectoralis major, and of a thinner or thicker layer of this muscle ; systematic ablation of the sternal portions of the lesser and greater pectoral has no subsequent inconvenience, and probably is more certain to prevent recurrence. The dissection of the axilla should be thorough, but with scissors, fingers, and director, one can do as much as with the scapula, and with

less risk. Removal of the skin should be large. Removal of the supra-clavicular glands is only useful to prevent extension in this region; if the supra-clavicular glands are diseased no cure can be looked for. Extension of the operation to the neck, the upper part of the mediastinum, etc., ought to be condemned.

Bryant[2] gives an analysis of 46 cases of cancer of the breast which have been operated on, and have survived the operation from five to thirty-two years. Mr. Bryant's routine operation was to remove the whole mammary gland with the skin and fat over the diseased area, and in every case for examination purposes to cut into the axilla and to take away glands or lymphoid tissue which appeared to be suspicious. The pectoral muscle he dissected clean, but did not remove it unless it was invaded by the disease. As a routine measure he regarded the removal of muscle as unnecessary. Looking at the cases as a whole it was seen that the interval which might take place between the primary amputation of a breast for cancer and its recurrence in the scar or the second breast, when such occurred, was most uncertain. In half the cases tabulated, recurrence took place in five years or less; in the second half the interval before recurrence appeared varied from six to thirty-two years, and in at least two-thirds of these cases it occurred after ten years. It was not his custom to clear out the axilla in all, yet these results did not suggest an inadequate operation.

Marmaduke Sheild[3] gives his results in 60 cases of malignant disease of the breast. He has seen during the last six years numerous instances of the difficulties which hinder early diagnosis of small indurations and deep lumps, such as a patient finds quite accidentally. Any slight hardness or thickening perceptible to the fingers laid flat on the mamma of a woman of the age of forty years or upwards, is a sign of the greatest import and demands immediate explanation. The diagnosis of a nodule of cancer from deeply seated cysts has time after time been shown to be impossible except by exploration. Dubious tumours in the breast need exploratory operations as much as dubious tumours in the abdomen. Sheild says, "It may seem heretical to state that the naked eye appearances as exposed in exploratory incision are, in my own opinion, more likely to lead the surgeon right than are the results of microscopical examination." He has known serious prognostical difficulties to arise from relying too certainly upon dubious microscopical appearances. The inability to feel enlarged

glands in the axilla goes for little or nothing in the diagnosis of early cancer of the breast. He regards the removal of the ovaries as experimental. During the six years ending August, 1901, he has operated on 59 cases of mammary carcinoma, and one of mammary sarcoma, and during this period he refused operation in 12 cases. Two out of the 60 were lost sight of, so there remain 58 for discussion, and of these 18 have been performed too recently to estimate their ultimate results. In all cases the most thorough method of operating was practised ; the skin was freely removed ; the axillary lymphatic tissues especially were carefully removed, and every scrap of fascia, both anteriorly and posteriorly ; in cases where the axillary glands were infected the lower part of the pectoral was removed, and in several cases the pectoralis minor was cut across in order to reach and to extirpate thoroughly a chain of diseased glands extending towards the clavicle. Great attention was paid to such points as the warm clothing of the patient, the temperature of the room, and especially rapidity in operating ; the latter is of great importance, especialy in elderly and bronchitic women. The anæsthetic has generally been gas and ether, followed by chloroform in the later stages. Drainage has been universally employed. If the axillary glands are infected he feels sure that removal of the sternal part of the pectoral muscles is almost a necessity to remove high glandular infection ; he ventures in this to differ from Sir Mitchell Banks, who holds that the glands can generally be effectually extirpated by forcible retraction of the muscle. Any gap has been filled in by implantation flaps rather than by Thiersch grafting. As regards results they are : Freedom from local recurrence, or if these have taken place they have been small and easily removed ; absence of œdematous arm, agonising pain, and fungating masses of disease. He attributes the absence of these latter to the thoroughness with which the axilla has been cleared. Gigantic œdematous arm is generally due, he thinks, to infected glands implicating and pressing upon the axillary vein ; the glands not being detected, or only partly removed at the primary operation. Of the 40 cases 8 are well for the highly satisfactory period of five years, 4 for four years and upwards, 7 for three years, and 11 for two years and upwards. In several cases of local recurrence, removal of the recurrence has resulted in freedom from return for three, four, and five years. Out of 40 cases, 30 have received untold benefits from modern surgery. The prognosis in cancer is very

uncertain. He thinks carcinoma associated with cysts is of a less malignant type as regards recurrence than when not so associated. If the *axillary* integument be so diseased as to need free removal it is doubtful whether the operation be worth doing. He keeps the arm in a sling for a week, and then gradually raises it by cushions placed underneath it. His conclusions are as follows :—

(1,) Risk of removing cancer of the mammæ by extensive operation is small, and should not be more than 1 or 2 per cent. Sepsis is preventible.

(2,) Early and free removal gives prospects of years of freedom, and in a good percentage of cases of good health and enjoyment of life.

(3,) The cases which do badly are (*a*) Soft and rapidly growing cancer in young and vascular women ; (*b*) Cases of long continuance before operation where the skin and cervical glands are widely infected.

(4,) In certain cases visceral cancers and cancers in the liver co-exist with or rapidly follow operation, and the explanation of these is uncertain.

(5,) Early exploration by incision of small nodules and indurations in the breast is of the first importance.

(6,) No one should undertake an operation for mammary cancer unless he is capable and has had sufficient operative experience to remove thoroughly all lymphoid tissues from the axilla ; the leaving of infected glands towards the apices of the axillary spaces being a common source of failure in the results of this operation.

(7,) The prognosis of mammary cancer is still dubious, and sometimes instances arise which falsify ordinary experience. Bad cases have long freedom from return ; early cases show recurrence. Operate early ; operate extensively.

References.—[1]*Congrès. Francais de Chir. in Rev. de Chir.* Nov. 1, 1901 ; [2]*Lancet,* May 17, 1902 ; [3]*Ibid,* March 8, 1902.

CANCER OF THE TONGUE. *Priestley Leech, M.D., F.R.C.S.*

Cathcart[1] describes a method of ligating the lingual artery through the mouth. The steps are as follows : Open the jaws widely ; draw forward the tongue with a stout silk suture in each half ; the mucous membrane is divided along the middle line of the dorsum behind the growth and between the tongue and the jaw ; split the tongue, and divide the fibres of the genio-hyoglossus close to the symphysis with scissors, so that the

diseased half of the tongue can be drawn well out of the mouth. With a few vertical strokes of a director or other blunt instrument the anterior edge of the hyoglossus muscle is defined. The director is then insinuated beneath the muscle, the tissues being separated with the point before the instrument is pushed in. The muscle is then carefully cut through in the director for about two-thirds of its extent, and the fibres retracting leave the artery at the bottom of the wound covered only by a little connective tissue. The vessel is defined with the point of an aneurysm needle, which is then passed under it and the vessel tied. After the artery has been ligatured and divided, a few snips should be made with the scissors radiating from the ligatured artery into the substance of the tongue; this lessens the chance of cutting the artery afterwards. He finds that one can reach in this way the same part of the artery that is tied in the usual operation for a preliminary ligature in the submaxillary triangle.

REFERENCE.—[1] *Ann. Surg.* July, 1902.

CATARACT. *E. H. Holthouse, M.B., F.R.C.S.*

Zonular Cataract.—J. B. Story[1] describes the nature of the pathological changes in this form of cataract, confirming the statements made previously by Lawford and Schirmer. Horner's observations were to the effect that a temporary derangement of nutrition affecting the whole organism, generally of the nature of rickets, produces defects in the young growing fibres of the lens without affecting the older central fibres, and as new transparent fibres are formed subsequently, external to the opaque zone, the result is a zonular cataract. Till recently it was generally accepted that the nucleus of the lens is normal in zonular cataract, but Beselin discovered that this is not the case, and that the nucleus exhibits numerous minute vacuoles. This implication of the nucleus has been corroborated by nearly all subsequent observers, the cataractous zone itself also being formed by vacuoles. The writer considers the most satisfactory explanation to be that of Schirmer, which is in essentials the old theory of Horner adapted to our present knowledge. It may be stated thus. Some temporary lesion of nutrition affects the entire crystalline lens, and produces vacuoles among the fibres, but these changes are only sufficiently marked in the *youngest* fibres to produce a definite clinical opacity, and this is the zonular cataract. If the whole lens, nucleus and cortex,

happens to be pretty nearly and equally affected, we have a stationary central cataract, which may be looked on as a sort of imperfect zonular cataract. The shrinking of the nucleus produces clefts, which appear as the well-known "outriders" seen in these cataracts, and to the same cause is due the diminished size of the lens in these cases.

Immature Cataract.—In an article on this subject De Schweinitz[2] reaches the following conclusions which deserve attention. It will be noticed that he does not condemn the *extraction of unripe cataracts.*

(1,) Certain lenticular opacities, most often situated in the naso-inferior quadrant of the lens, occasionally are practically stationary, and may be designated "non-progressive." They do not handicap the patient's ocular abilities, and may with propriety be separated from the class to which the name incipient cataract is ordinarily given.

(2,) Certain lenticular opacities are doubtless dependent, as Risley and others have shown, on what may be designated "disturbances of the choroid," as apart from active and actual choroiditis; and their progress is sometimes apparently checked by measures—optical, local, and general medicinal—which restore the choroid coat to normality. Such measures do not, however, remove from the lens the opacities which have already formed when the patient comes under treatment.

(3,) Certain lenticular opacities which appear in association with diabetes mellitus, nephritis, lithæmia, and arterio-sclerosis, particularly the last two diseases, are sometimes apparently retarded by measures which are suited to the patient's general condition in connection with local and optical therapeutics; but these measures never dissipate the lens-lesions already present.

(4,) Certain lenticular opacities produce not only prodromal myopia, but very high degree of astigmatism, the correction of which may result temporarily in a surprising improvement in visual acuity.

(5,) Certain lenticular opacities cause an obscuration of vision that may be largely dissipated temporarily by providing the patient with glasses moderately tinted, which give the best visual acuity during mydriasis, and maintaining this mydriasis with a mild mydriatic. Sometimes, under these circumstances, the mydriasis seems to hasten maturation; this fact should be explained to the patient.

(6,) Certain lenticular opacities, especially in the form of

striæ of refraction, cause an obscuration of vision which is somewhat relieved by maintaining a mild myosis with weak solutions of one of the myotics.

(7,) If the vision of eyes suffering from incipient cataract of the nuclear type is improved by mydriasis, this is not a sufficient indication for optical iridectomy, unless the patient finds by observation that the increased visual acuity, as noted by test-type examination, is also advantageous in pursuing his ordinary occupation.

(8,) The extraction of unripe cataracts is preferable to any of the ordinary operations for ripening cataract.

(9,) There is no evidence that electricity has the slightest influence in checking the rate of progress of incipient cataracts, or in dissipating the opacities which have formed.

(10,) If there is any evidence that massage of the eyeball favourably modifies the rate of development of cataract it is still very insufficient; there is some evidence to show that massage sometimes hastens the opacification of the lens. This subject demands further investigation.

(11,) There are no "specific remedies" for the treatment of cataract, and there is no reliable evidence that drugs exist which cause the absorption of partially or fully formed cataracts.

(12,) All lenticular opacities, unless perhaps those which belong to the so-called non-progressive group, should be regarded as indications for a thorough investigation of the patient from the general as well as the ocular standpoint, and for an employment of remedial agents—optical, local, medicinal—according to the findings.

Depression of Cataract.—A strong plea for the revival of this ancient operation in suitable cases, as an alternative to extraction, has been recently advanced by H. Power.[3] He points out that it is still largely practised in the East by Indian and Chinese quacks, with rude instruments, and yet with good and sometimes brilliant results; and further, that the discredit into which it has fallen in Europe is due partly to the great success which, under antiseptic treatment, generally attends extraction, and to the fact that it has not had the advantage of being generally performed under modern conditions. Disaster, in old days, was due in most cases to the introduction into the eye of septic organisms. These nowadays can be excluded. From vomiting the risk is just as great in extraction as in reclination, and need not cause failure. Irido-cyclitis is a possible result,

and certainly did occur, but chiefly in those cases in which the lens broke up under the pressure used to effect its depression. Glaucoma also may follow, but is less to be dreaded than formerly, since a subacute attack can be controlled with **Eserine,** and an acute attack met by **Iridectomy.** Moreover, years may elapse before glaucoma follows the act of depression, if that is really the cause of it. Lastly, in view of the microbic origin of sympathetic ophthalmia, now very generally entertained, there seems no more reason for anticipating its advent after depression than after extraction.

The cases in which depression is recommended are as follows :—

(1,) In persons enfeebled by age and other infirmities, in whom an extraction wound will not unite.

(2,) In eyes presenting physical obstacles to extraction, such as a small globe or one deeply set, or a narrow palpebral fissure.

(3,) When chronic conjunctivitis that does not yield to treatment is present, especially if there be also some dacryo-cystitis.

(4,) In deaf patients, who are less amenable to discipline than others.

(5,) In lunatics, imbeciles, and idiots, whose actions are difficult to control.

(6,) In old, fat, flabby, and phlegmatic patients, because they are more liable to complications than thin alert persons.

(7,) When chronic bronchitis is present, since this may cause separation of the lips of the wound.

(8,) In cases in which, from softening or liquefaction of the vitreous, the iris trembles, and the lens easily shifts its place. In these the vitreous, after incision, flows away, and shrinking of the globe follows.

(9,) In patients who have already had one eye operated on unsuccessfully. The less formidable method of depression will be accepted, though extraction may be refused.

(10,) In patients with the hæmorrhagic diathesis.

The arguments advanced for the revival of this procedure are so powerful, that it is to be hoped other surgeons may give it a trial in suitable cases.

"*After Cataract.*"—The varieties and treatment of the conditions classed under this name have been discussed by Richardson Cross.[4] The term "after cataract," he considers, should be applied to the opacities, films, membranes, and other similar complications resulting from the removal of the lens. That of "secondary cataract" should be reserved for cases in which

the lens itself has become opaque through the action of some other disease of the eye.

After cataracts present many varieties. They may be classed as "simple" if only the lens *débris* and the capsule are implicated; "complicated" if there be entanglement with some of the structures around; "inflammatory" when the capsular membrane has become thickened by lymph, the result of iritis or cyclitis, and made adherent to the neighbouring parts. Since these all arise from some imperfection in the operation, or faulty healing, the question arises whether any special care in extraction can prevent such after effects.

Peripheral incision of the cornea and a conjunctival flap encourage rapid healing, and lessen the likelihood of faulty adhesion between the cornea and the capsule. The toilette should be thoroughly carried out, to ensure the absence from the wound of any fragment of iris, etc. The method of lacerating the capsule is of importance. Free tearing is advisable, in order to leave a large opening, but a wide circular sweep over the face of the lens with a sharp, triangular Graefe's cystotome in order to try and remove a portion of the thickest part of the capsule with the lens is recommended. The removal of the cortical *débris* must be carried out as completely as possible. This can be done very thoroughly when an iridectomy has been performed, but it is more important in simple extraction to have perfect replacement of the iris.

In a large percentage of cases the occurrence of after-cataract, interfering more or less with vision, cannot be prevented. Before any operation for the relief of this condition is performed, it is essential that the eye should be perfectly quiet. A year is not too long a time to wait, and if the patient has moderately useful sight and no complications are present, the eye had better be left alone. If operation is decided upon, a modified Bowman needle used as a knife is recommended as the best instrument. The main cut should be horizontal, with a second one at right angles through it. But the method must be varied according to the thickness and attachments of the membrane. The various modifications are discussed at length.

REFERENCES.—[1]*Ophth. Rev.* Sept. 1902; [2]*Therap. Gaz.* June 15, 1901; [3]*Brit. Med. Jour.* Oct. 26, 1901; [4]*Ophth. Rev.* Oct. 1901.

CEREBRO-SPINAL MENINGITIS, (Epidemic).

E. W. Goodall, M.D.

Buchanan[1] has recorded three very unusual cases of this disease. In the first case the patient, a Hindu, forty years of age, had, as a complication, arthritis of both knees and ankles, and one wrist. In the second case, a Mohammedan, aged fifty-five years, there was right hemiplegia, which an autopsy showed to be due most probably to the intensity of the meningitis over the left hemisphere of the brain. The third case, a very rare one, was as follows : "A man, aged forty-five years, had worked all day, and took his food at 6 p.m. Shortly after taking food he vomited, and quickly became unconscious. The breathing rapidly became stertorous, and the pupils were dilated. When seen by me an hour after the attack, Kernig's symptom was extremely well marked in both knees. The patient died in three and a half hours. At the necropsy, ten hours after death, the dura mater was found to be intensely congested. The surface of the brain was congested to a degree that I have never before seen equalled. The sulci were filled with a fine, cloudy lepto-meningitis. On cutting into the brain it could not be described as other than infiltrated with blood-clot. The fluid in the spinal canal looked like almost pure blood. The other organs presented nothing abnormal, except that both of the lungs were deeply congested. Several tubes of the cerebro-spinal fluid were taken and sent to the research laboratory, Bombay, for examination, and in the fluid was found the diplococcus intracellularis of Weichselbaum. The heart weighed no less than twelve ounces, free of all clots."

During four years Buchanan had 60 cases of this disease in the Bhagalpur central prison, Bengal ; of these 43 were fatal, 71 per cent ; 22 of the cases were of the fulminant type, and died within one or two days. Buchanan states that pathologically, and to a certain extent clinically, the cases could be divided into two groups ; the one in which the exudation is chiefly confined to the base of the brain and medulla, and extends for varying distances down the cord (the posterior basic form) ; the other where the exudation is found filling up the sulci in the upper surface of the hemispheres, though in some cases it extends down the sides and back to involve the cerebellum (the vertical form).

Some cases of this disease, which was epidemic in Dublin in the early part of 1900, have been described by Parsons and

Littledale.[2] The first one to come under observation was a woman, aged twenty-eight, who was admitted to the ophthalmic ward of the Royal City of Dublin Hospital on January 31, complaining of seeing double. She had been taken ill on January 5 with shivering, followed by severe pain in the back of the head and vomiting. Diplopia developed on January 23. In the hospital she had headache, chiefly in the back of the head, vomiting, diplopia, slight strabismus, and intense optic neuritis. The temperature was normal, and the pulse quiet. The patient left the hospital on February 23 nearly well, and by the middle of March had quite recovered. Of this case Parsons remarks that he was unable to arrive at any positive diagnosis while she was in the hospital. The symptoms were more suggestive of meningitis than of any other intracranial disease, but the complete recovery of the patient differed from any form of meningitis he had met. In the light of the subsequent cases there is little doubt that it was a mild attack of cerebro-spinal meningitis. Six other cases were admitted to the hospital from January to April; the following is a brief epitome of the symptoms :—

Case 2; male, seven; headache, unconsciousness, squint, retraction of head and rigidity of neck muscles, naso-labial herpes, pyrexia, slight optic neuritis, Kernig's sign, vomiting; recovery.

Case 3; male, twenty; headache, vomiting, retraction of head, retention of urine, loss of knee-jerks, pyrexia, coma; death three and a half days after commencement of illness.

Case 4; female, twenty-two; rigor, headache, vomiting, clonic spasm of occipito-frontalis muscle, naso-labial herpes, squint, pain in back, retraction of head, slight optic neuritis, Kernig's sign, some difficulty of breathing, pyrexia, tremor of lower extremities; recovery.

Case 5; male, thirteen; delirium, coma. cyanosis; death half an hour after admission to hospital.

Case 6; female, six; headache, vomiting, loss of sight, delirium, retraction of head, squint, opisthotonus, naso-labial herpes, Kernig's sign, optic neuritis, pains in the limbs, loss of control over bladder and rectum, pyrexia, coma; death after two months.

Case 7; male, five, brother of case 6; headache, vomiting, retraction of head, arching of back, Kernig's sign, an attack of collapse, pyrexia; recovery.

Unfortunately permission to make an autopsy was refused in

all the fatal cases; but some of the cerebro-spinal fluid was obtained by lumbar puncture, *post mortem*, in Case 5; this was examined by Littledale, who found the diplococcus intracellularis of Weichselbaum.

TREATMENT.—The treatment adopted in the above cases was: **Ice** and evaporating lotions to the head; **Trional, Bromides,** and **Morphine** to relieve restlessness and procure sleep; **Calomel** as a purge; pain in the trunk and extremities was greatly relieved by rubbing with a chloroform and camphor liniment. The treatment in a severe case of a girl five years old, who recovered, reported by Riley,[3] consisted in the application of an **Ice-bag** to the nape of the neck, and during the severity of the fever also to the vertex; a mixture of **Bromide** and **Iodide of Potassium** to allay irritability and promote absorption; brandy internally, and heat externally when there was collapse; nutrient enemata during a period of vomiting; and small doses of **Calomel** to keep the bowels open.

It is fairly certain that, as with most infectious diseases, this variety of meningitis occurs in a sporadic form. Hunter and Nuthall[4] examined bacteriologically the cerebro-spinal fluid of 10 cases of sporadic meningitis admitted into the London Hospital during the early months of 1901. They briefly summarise their results as follows: (1) In all the 10 cases of meningitis examined by them a diplococcus was isolated from the cerebro-spinal fluid. In 9 of these the fluid was obtained by lumbar puncture during life. (2) This diplococcus had the same morphological and biological characteristics as Weichselbaum's diplococcus intracellularis meningitidis. (3) In some cases the diplococcus was present in pure culture, in others associated with other micro-organisms, *e.g.*, bacillus influenzæ and bacillus tuberculosis. (4) The clinical picture and the pathological changes found in these cases were those met with in so-called "posterior basal meningitis." (5) In all probability "posterior basal meningitis" is simply a sporadic manifestation of cerebro-spinal meningitis, and is produced by the same micro-organism, namely, the diplococcus intracellularis meningitidis. This last hypothesis was put forward by Still, in a paper which was quoted in the *Medical Annual* for 1900.

Hunter and Nuthall's paper (*cit.*) contains a good history of the bacteriology of cerebro-spinal meningitis, with references.

REFERENCES.—[1]*Lancet*, July 13, 1901; [2]*Ibid.* June 23, 1900; [3]*Ibid.* March 23, 1900; [4]*Ibid.* June 1, 1901.

CHILBLAINS. *Norman Walker, M.D.*

Courtin,[1] of Bordeaux, uses **Peroxide of Hydrogen** in the treatment of chilblains. In very small children it is necessary to reduce the ordinary 12 volume solution to 3 volumes, by mixing with warm water. The parts are bathed with this for half an hour daily. In children over three, and in adults, the solution is reduced to 6 volumes, always with boiled water, and the bath is of the same duration. If the chilblains are ulcerated, saturated solution of **Borate of Soda** is added to reduce the acidity and diminish the pain of the application. Three baths of half an hour as a rule suffice to cure the ulcerated chilblains, but more are necessary in severe cases.

REFERENCE.—[1]*Soc. de Med. et de Chir. de Bordeaux*, Dec. 6, 1901.

CHLOROMA. *R. Hutchison, M.D.*

Cases of this rare disease have recently been described by Melville Dunlop,[1] Byrom Bramwell,[2] and Rosenblath and Risel.[3] Its characteristic features are as follows :—

(1,) *Lymphoid deposits in the orbits, temporal fossæ, and periosteum of the skull.* In consequence of the orbital deposits there is usually exophthalmos. Lymphoid infiltration of the cornea and the conjunctivæ may also develop. The periosteal lesions are not confined to, though they are apparently always most marked in, the region of the skull and face. The periosteum of the bones of the vertebral column is often affected. Deafness and facial paralysis often occur from pressure on nerves and the tonsils ; gums, epiglottis, palate, and larynx may be infiltrated.

(2,) *The green colour of the lesions* (lymphoid deposits in the orbits, periosteal lesions, lymphoid deposits in the kidneys, liver, spleen, bone, marrow, etc.). In many cases the discolouration is only noted after death ; in some cases the urine passed during life has been green. The exact cause of the green colour is unknown ; Bramwell thinks it may be absent in some cases.

(3,) *A profound blood change*, characterized by anæmia, cachexia, and hæmorrhages into the skin and from the mucous membranes, with histological changes in the blood resembling those of acute (lymphatic) leukæmia.

(4,) *Infiltration with lymphoid deposits* of the bone, marrow, spleen, lymphatic glands, the organs throughout the body, and possibly of the skin, as in lymphatic leukæmia.

The disease was first described by Allan Bevons in 1823, and not more than twenty-seven cases have been recorded since.

The tumour from which the disease takes its name is of a grass-green, yellow, or grey-green colour, usually firm, but sometimes of a soft consistence. The green colour of the tumour which may be observed during life is held by some to be due to hæmatogen, by others to a fatty pigment, and by others to be of bacterial origin. The cervical glands are sometimes, though not always, enlarged ; the bronchial and mesenteric glands almost invariably so. In several cases the spleen is enlarged. The liver is usually free, but often little masses of tumour are found in the lungs. The condition of the marrow is important. It may be dark reddish, yellowish green, or grass green. Recklinghausen saw pea-green clumps in the marrow of the long bones, especially in the upper part of the femur. Some hold that the tumour arises from the periosteum, others that it springs from the lymphatic system. As a rule the disease occurs in the first, second, or third decade of life. In Huber's seven cases the oldest patient was twenty-four. Paviot has seen it in a child in its first year, Waldstein in a patient of forty-four, and Lang in a man of fifty-two. Males are most often affected. The disease usually produces general symptoms, of which dulness and apathy, pallor, and palpitation of the heart are the most frequent. Soon the tumour becomes apparent. Its usual site is on the bones of the head, most frequently in the orbital cavity. Double or single exophthalmos is therefore one of the most important symptoms, and it is usually accompanied by violent pain. In many cases the tumour is then palpable in the depths of the orbit. The organs of hearing are often affected. Körner has described tinnitus and deafness in ten cases. Frequently the tumour grows in the nasal cavity, producing difficulty in breathing and frequent severe epistaxis. The brain and its nerves are not often affected. Headache and giddiness are often present. Apathy and somnolence are common, though the sensorium may remain unaffected till death. Behring met with apoplectiform seizures. Paralysis of cranial nerves is, with the exception of the optic nerve, not frequent. Green pigment may be found in the kidneys and the urinary passages, and in Waldstein's case the urine was yellowish green. The condition of the blood closely resembles that of leukæmia. Rosenblath compares the blood condition in his cases of chloroma with that in a female patient of twenty-four with acute leukæmia. Bramwell also dwells upon its close resemblance to lymphatic leukæmia.

The disease is invariably fatal. Death usually results (from

exhaustion) within six months, although cases of two years' duration have been recorded.

Diagnosis.—This must be made from sarcoma or aneurysm of the orbit, retro-bulbar hæmorrhage, and Graves's disease. When chloroma is suspected, blood films should be examined. If there is a marked increase of lymphocytes, and tumours such as have been described in any part of the body, the diagnosis is established. Microscopically the tumours in chloroma consist of large round or oval-shaped cells, slightly larger than a white blood corpuscle, containing many nuclei and occasionally nucleoli. These cells are either embedded in an inter-cellular transparent amorphous material or in a delicate network. At other times the tumour is interspersed by coarse bundles of connective tissue, in the midst of which highly refractile granules are found lying in or between the cells. On the whole the growths are best described as lympho-sarcomata, for they resemble lymphoma in their histological structure, and sarcoma in their periosteal origin and metastasis.

References.—[1]*Lancet*, Feb. 15, 1902; [2]*Scottish Med. and Surg. Jour.* March, 1902; [3]*Deut. Archiv. f. Klin. Med.* Dec. 1901.

CHOLERA. *James Cantlie, M.B., F.R.C.S.*

In *Egypt* during the summer and autumn of 1902 a serious outbreak of cholera occurred. The disease was wide-spread, extending over Lower Egypt and to many parts of Upper Egypt. During the month of August the disease began to assume alarming proportions and rapidly spread; during the week ending August 25th alone over 144 new localities were reported as becoming infected. The advance, climax, and wane of the epidemic were timed as follows: The number of fresh cases of cholera in Upper and Lower Egypt reported during the weeks ending Aug. 18th numbered 1127; Aug. 25th, 2040; Sept. 1st, 3875; Sept. 8th, 7758; Sept. 15th, 9466; Sept. 22nd, 6388; Sept. 29th—Oct. 6th, 1571; Oct. 13th, 819. After the middle of October the disease rapidly declined, and by the first week of December Egypt was practically free from the plague, a single case of cholera being met with only occasionally in Alexandria.

Origin of the epidemic.[1]—Careful enquiry would seem to point to the pollution of a well by pilgrims returning from Mecca, as the cause of the outbreak in Egypt. Some seventeen pilgrims left Moucha for Mecca, and on their way back one of the pilgrims was seized with symptoms of cholera at Tor, on the Gulf of Suez. There he was nursed by a woman who accompanied the party,

and on reaching Moucha the child of this woman died of diarrhœa. Numerous deaths from the same cause ensued; and meanwhile the returned pilgrims frequented the mosque in the centre of the village, the latrines of which are in the immediate vicinity of the village well. It is from this well that the earliest cases of the epidemic are known to have taken their water. The pilgrims returned to Moucha in June, and the outbreak was first reported to be serious on July 14th. Cholera lingered longest in Alexandria, where the sanitary authorities had considerable difficulty in imposing strict measures; but by guarding the Mahmoudieh Canal, whence the water supply of Alexandria is derived, for some ten miles, and establishing regular systems of inspection and disinfection, the epidemic was brought under control. The seriousness of the epidemic may be gauged by the fact that up to October 1st. 35,000 cases of cholera were officially reported in Egypt.

Cholera in Syria.—The introduction of cholera into Palestine followed upon the Egyptian outbreak. On October 8th an outbreak of cholera was reported from Gaza and from Bydda near Jaffa. During the ten previous days forty deaths were stated to have occurred in this district daily, and it may be assumed that the disease reached Syria during the month of September. During the week ending November 1st 494 deaths from cholera were reported as having occurred at Gaza and the neighbouring villages, 78 at Lydda, and 5 at Jaffa. The appearance of the disease was attributed to the ineffectual military cordon placed upon the Egyptian frontier, and the futility of cordons to ward off cholera is by this, the most recent experience, again demonstrated.

Cholera in the Philippines.—Throughout the summer and autumn of 1902 cholera prevailed in an epidemic form in the Philippines. The disease first attracted attention in the month of April, and by September over 32,000 cases were reported, with 23,000 deaths from the disease. Europeans suffered considerably, 170 cases with 95 deaths from cholera occurring amongst Americans and Europeans.

Cholera on the China coast and in Manchuria.—From Hong Kong, Canton, and several of the treaty ports in the South of China an outbreak of cholera was recorded during the summer and autumn of 1902, but the disease nowhere proved exceptionally virulent. In Manchuria the outbreak seems to have travelled inland. On the north-eastern frontier of Mongolia cholera

was prevalent in the summer of 1902, and at the city of Khailar, a city on the frontier between Manchuria and Mongolia, a traveller relates: "Khailar was found to be suffering from the ravages of cholera; the Mongols were flying before the disease."

Cholera would appear to have been almost pandemic in Asia during the past twelve months. No new facts concerning the pathology or treatment of the disease are to hand, and the death-rate of this outbreak appears as high as during any epidemic in the nineteenth century.

REFERENCE.—[1]*Brit. Med. Jour.* Oct. 11, 1902.

CHOREA. *Graeme M. Hammond, M.D., New York.*

Thomas,[1] of Baltimore, contributes a very interesting article upon the embolic theory of chorea, and reports a case of chorea occurring with embolism of the central artery of the retina. Only six similar cases are recorded. In speaking of the pathology of chorea, he calls attention to the present theory that the movements of the disease depend upon some morbid process acting upon the cortex, but shows also the very important part that sensory impulses play in the production of co-ordinate movements, and the extreme complexity of the mechanism underlying such movements. Destruction of many parts of the nervous system other than the motor tracts causes marked disturbances. He does not accept the theory that it is a disease of the cortex, especially the motor cortex, that is responsible for the movements in chorea. He points out that lesions of this structure are followed by movements more like those seen in epilepsy, and that epileptic convulsions are very uncommon even in the most severe cases of chorea. He considers it more probable that lesions of the optic thalamus are responsible for the symptoms of chorea, but believes it of little value at the present time to advance any theory as to the seat of the morbid process in this disease, and expresses the opinion that when the lesion is found it will be on the afferent rather than on the efferent side of the motor mechanism.

In regard to the morbid agent causing chorea he has but little to say. He regards the embolic theory as untenable, and believes that a poison similar to the rheumatic poison is the responsible agent. Osler considers it surprising that embolism does not occur oftener in chorea, as there is perhaps no disease in which endocarditis occurs more frequently. Of 73 autopsy reports in chorea cases, endocarditis was observed in 67 of them.

Jemma[2] recommends **Lumbar Puncture** in severe and intractable

cases of chorea. He reports two cases implicating speech and deglutition, with movements so severe and incessant that sleep was impossible. In the first case the withdrawal of 20 c.cms. of cerebro-spinal fluid was followed by an immediate improvement lasting ten days. The symptoms then recurred with such severity as to require a second puncture, by which another rapid improvement was obtained, and by the administration of **Arsenic** in large doses a cure was effected. In the second case the withdrawal of 25 c.cms. of fluid caused almost immediate relief. Arsenic was begun at once and the patient recovered.

Farreras[3] reports a most severe case of chorea, which was at first treated by injections of **Artificial Serum** (*chaix*) in doses of 30 c.cms. on alternate days without the least amelioration in the symptoms. He was then given daily injections of 5 c.cms. of physiological **Ox-serum.** A marked and immediate improvement followed, and in a few days the dose was increased to 10 c.cms. In five or six weeks the patient entirely recovered.

Ewing[4] highly recommends hypodermic injections of **Hyoscine Hydrobromate.** It has generally been the author's custom to use the hyoscine in conjunction with **Arsenic,** yet in several of his cases he has used the hyoscine alone after having given arsenic without avail. The dose of hyoscine varied from $\frac{1}{200}$ to $\frac{1}{50}$ grain, according to the age of the patient and the severity of the attack. The injections were given morning and afternoon.

Meade[5] and Mackey[6] report severe cases successfully treated by **Trional.** Meade gave from 20 to 25 grains at night and 15 grains in the morning, reducing these doses as improvement occurred. Mackey gave 5 grains three times a day. Both report very successful results.

REFERENCES.—[1]*Johns Hopkins Hosp. Bull.* Oct. 1901 ; [2]*Gaz. deg. Osped.* Dec. 1, 1901 ; *Brit. Med Jour.* Jan. 25, 1902 ; [3]*Arch. de Gynec. Obstet. y Ped.* Jan. 25, 1902 ; *Brit. Med. Jour.* March, 1902 ; [4]*Penn. Med. Jour.* Nov. 1901 ; *Therap. Gaz.* April, 1902 ; [5]*Brit. Med Jour.* Nov. 2, 1901 ; [6]*Ibid.* Dec. 21, 1901.

CHOROID (Tuberculosis of) *E. H. Holthouse, M.B., F.R.C.S.*

The view that tubercle of the choroid is very rare, and almost limited to cases of acute miliary tuberculosis, is strongly opposed by G. Carpenter and S. Stephenson.[1] After examination of 50 cases they come to the conclusion that tubercle of this structure may be met with in any form of tuberculosis, acute, chronic, or quiescent, though far commoner in the acute forms. In the chronic form it was found in 2·24 per cent of the cases.

The affection may assume several distinct ophthalmoscopic forms. In acute cases it generally affects one eye, and consists of a single deposit in the "central region" of the fundus, where it forms an oval, round, or reniform spot, of grey, fawn, or paper-white colour. Its edges are marked by a narrower zone of darker colour due to the aggregation and proliferation of the retinal pigmented epithelium. When the lesions were multiple, the common number was two or three. In chronic cases the lesion may be single, multiple, disseminated, or diffused. The single and multiple forms resemble those found in acute cases. In disseminated tubercle the eyes present an appearance similar to that of *choroiditis disseminata syphilitica*. The retina may be detached. Diffused tubercle of the choroid may sometimes assume large dimensions.

As in the lungs, tubercle in the choroid may become obsolescent. In some instances the appearances are so characteristic that the nature of the disease may be diagnosed at once. These generally consist of a patch of choroidal atrophy of notable size, near the centre of the fundus, with exposed choroidal vessels, and a pigmented border. This may be accompanied by a few fawn-coloured "satellite" spots.

REFERENCE.—[1]*Brit. Med. Jour.* Nov. 2, 1901.

CIRRHOSIS OF LIVER. *R. Hutchison, M.D.*

Etiology and varieties.—The trend of recent opinion is opposed to the deeply-rooted belief that alcohol is the chief exciter of cirrhosis, and in favour of the view that an overgrowth of the connective tissue of the liver can be brought about by many different irritants or poisons. Amongst such agents for which a good claim has been made out are syphilis, metallic poisons such as mercury, lead and arsenic, spices, *e.g.*, pepper, capsicum, vinegar and coffee, specific fevers, and the poisons of certain micro-organisms, such as the *bacillus coli*. It is probable that the action of all these agents upon the liver is only indirect, and that their primary effect is to cause gastritis, following which fermentative poisons are formed in the stomach and intestine, and absorbed into the portal circulation.

In addition to the cirrhosis which results from these causes, there is a form of induration of the liver dependent upon chronic venous congestion from heart or lung disease, to which the name of "cardiac cirrhosis" has been given, and the occurrence of cirrhotic changes in the liver as a result of obstruction of the

bile ducts was dealt with in the *Annual* for last year. It is unfortunate that the one term "cirrhosis" is applied to these very different conditions. "Chronic interstitial hepatitis" is preferable, and would be more in accord with the morbid anatomy.

Authorities are not yet agreed as to whether the so-called "hypertrophic" and "atrophic" forms of cirrhosis are really separate diseases, and not merely different stages of the same morbid process. It has been pointed out[1] that the liver undoubtedly possesses the power of regeneration, as in rabbits considerable portions have been removed without perceptible detriment, and on sacrificing the animal after some time the liver has been found to have increased considerably in size and weight; and it has been suggested that the capacity for compensatory hypertrophy lies at the root of the difference between hypertrophic and atrophic cirrhosis (Hayem). But if this be true we are still ignorant of the conditions which on the one hand permit, and on the other prevent, such regeneration. Nor does the classification of cirrhotic livers, based upon their microscopical appearances, rest upon any firmer ground. Neither the presence of newly-formed bile ducts, nor the distribution of the fibrous tissue into multilobular or monolobular bands can be relied upon (Saundby, Cheadle). It has been stated indeed that the distribution may be monolobular and multilobular in different parts of the same liver (Kretz). Fresher interest attaches to the etiology of cases of cirrhosis preceded by, or at least associated in their early stages with jaundice. The classical type is that originally described by Hanot, of which the leading features are early jaundice, enlarged liver, and absence of ascites; in this the spleen is enlarged but not greatly. There is another less known form, first described in Italy, but since recognized in France and Germany, in which the enlargement of the spleen is greater in proportion than that of the liver. Some observers believe that the enlargement of the spleen is primary, while others distinguish three forms of biliary hypertrophic cirrhosis with enlarged spleen: (1) The liver and spleen are affected simultaneously; (2) The spleen is affected before the liver, and suffers more than the latter organ; (3) The liver is first affected. On the continent there is a general disposition to regard these cases as due to local infection, and the enlargement of the spleen is attributed not to obstruction of the portal circulation, but to the effect of microbial toxins.

Symptoms and Diagnosis.—It is probable that interstitial hepatitis may reach a high degree, without producing any symptoms at all. A sudden fatal hæmatemesis may be the first indication of the disease, and it is only in a minority of the cases of hæmatemesis that the supposed typical signs of cirrhosis—ascites and a large spleen—are present. Apart, indeed, from ascites and hæmatemesis, it is doubtful if cirrhosis can give rise to any special symptoms of its own, for the clinical description of such cases met with in text-books is largely a description of chronic gastritis. The hypertrophic form of interstitial hepatitis often presents insuperable difficulties of diagnosis in the early stage. The recurrence or persistence of jaundice, its intensity, and the presence of bile in the stools, are of diagnostic importance. After the disease has become established the uniform enlargement of the liver, the splenic tumour, the occasional attacks of jaundice, and the fever, are diagnostic. Chills and sweating are not common, thus serving to differentiate it from impacted gall-stones. In terminal conditions the diagnosis is a comparatively simple matter.

Treatment.—Musser,[2] of Philadelphia, states that small doses of **Calomel** frequently repeated act well as a diuretic, and can be relied on in many instances in which the stimulating diuretics, as caffeine, strophanthus, and other forms, have failed. One-tenth of a grain every three hours is a dose which in four or five days brings on diuresis and gradual reduction by this means, and perhaps by absorption of the fluid. **Apocynum Cannabinum,** in doses of 15, 20, or 30 drops, four times daily, has proved valuable in reducing the ascites. It will often act as a purgative, a not necessarily desirable effect, which can, however, be controlled by regulating the doses. **Copaiba,** in capsules of 10 minims every four hours, has also proved efficient. If not contra-indicated by gastric or intestinal conditions it is often the most satisfactory. Often medication will not relieve the ascites, so the fluid must be removed. We must not postpone the operation. A too great faith in medication, when kept up too long, permits pressure effects of the ascites which are not desirable. Tapping, to remove the fluid, should be resorted to early ; and it should be done as frequently as the fluid forms. Campbell Thomson[3] has a valuable paper on the treatment of the ascites associated with cirrhosis. He points out that ascites may be due either (1) directly to the cirrhosis or (2) to some coexistent cause, *e.g.*, peri-hepatitis or peritonitis. The prognosis in the first group is

extremely bad, and the patient rarely lives long enough to require tapping, or dies soon after he has been once tapped. The outlook in the second group is more hopeful, and to it belong probably all the cases which have been cured by **Repeated Tappings**. He refers to the operation introduced by Morison and Rutherford for the cure of ascites by the establishment of a **Collateral Circulation** between the omentum and abdominal parieties, and tabulates fourteen cases in which it has been performed. In four of these a cure resulted. This is not really a higher proportion than might be expected in a similar series treated by repeated tappings, and the author is of opinion that the operation is only useful in those cases in which the ascites is associated with and not directly due to the cirrhosis, and that it should only be had recourse to when repeated tapping has failed to produce benefit. He believes that it acts simply by obliterating the peritoneal cavity by adhesions, and not by the establishment of a collateral circulation.

REFERENCES.—[1]*Brit. Med. Jour.* June 15, 1901 ; [2]*Jour. of the Amer. Med. Assoc.* Oct. 15*th*. 1901 ; [3]*Lancet*, July 20, 1901.

CIRRHOSIS OF THE LIVER, (**Surgical Treatment of**).

William Murrell, M.D., F.R.C.P.

The treatment of ascites due to cirrhosis of the liver by ordinary measures, such as the administration of purgatives, diuretics, and diaphoretics, is unsatisfactory ; and even **Paracentesis** is merely palliative, for the fluid speedily re-accumulates, and after a succession of tappings the patient usually dies of exhaustion or some intercurrent mischief.

There are many kinds of hepatic cirrhosis, different both in etiology and causation, and in the pathological conditions they present. The majority are undoubtedly due to alcohol, but many are syphilitic in origin, and a certain number are due to lead. In some cases more than one factor is at work in producing the result. For clinical purposes we readily distinguish between the atrophic and the hypertrophic varieties, and we naturally note the presence or absence of ascites and of jaundice.

It has long been known that in many cases of cirrhosis of the liver where ascites was absent, vascular adhesions connecting the viscera with the parieties were found, and it was obvious that an artificial extension of the natural process might be attended with beneficial results. In some cases the enlargement of the normal channels of communication between the portal and the systemic circulation suffices, but in others adventitious

means of establishing an accessory or supplemental circulation are necessary.

The natural anastomoses between the two systems are the following :—

(1,) The coronary veins of the stomach anastomose with the œsophageal, phrenic, and left renal veins.

(2,) The vasa brevia of the stomach anastomose with the left phrenic veins.

(3,) The gastro-epiploica of the stomach anastomose with the left renal veins.

(4,) The superior mesenteric veins anastomose with the left renal veins.

(5,) The hæmorrhoidal veins anastomose with the pudic veins.

(6,) Veins in liver adhesions anastomose with phrenic veins and veins in the abdominal wall.

(7,) The veins in the falciform ligament anastomose with the phrenic veins and veins in the abdominal wall.

Sappey's classification, which is that usually followed, may also be given :—

(1,) Anastomoses between the coronary veins of the stomach and the œsophageal plexus which discharge into the lower intercostal and azygos veins, and also communicate with the diaphragmatic vessels.

(2,) Veins passing in the coronary and suspensory ligaments of the liver and in the adhesions formed between the liver and the diaphragm.

(3,) The dilatation of a small vein in the round ligament, affording free communication between the portal vein and the epigastric vessels.

(4,) Veins forming the system of Retzius, which, originating in the intestinal canal and anastomosing with the radicles of the portal vein, discharge into the inferior vena cava and its branches.

(5,) Communications between the superior and inferior hæmorrhoidal plexuses.

It is by way of the falciform ligament of the liver that we get the anastomoses which give rise to the enlargement of the superficial veins of the abdominal wall.

The establishment of an **Accessory Circulation** may be accomplished in several ways : (1) By scratching adjacent peritoneal surfaces over the liver ; (2) By fixing a portion of the spleen in an abdominal incision ; and (3) By sewing a portion of the

omentum to the anterior abdominal wall. It is the last method which gives the most satisfactory results, and is the one which has been adopted in my cases.

The operation itself as a rule presents no difficulty. The patient having been placed under an anæsthetic, an incision is made in the median line about two inches below the umbilicus, and a large glass tube is introduced so as to drain off most of the fluid. A second incision is then made also in the median, about two inches above the umbilicus, and the finger is introduced to ascertain the condition of the adjacent abdominal viscera. If there is nothing pointing to the presence of malignant disease, a portion of the omentum is secured by kangaroo stitches to the margins of the wound. If antiseptic precautions are strictly observed there is little or no constitutional disturbance, the temperature remains normal, and in due course the superficial veins are noticed in process of formation in the anterior wall of the abdomen. The glass tube is retained for some days, so that the abdominal cavity may be completely drained. There is as a rule no return of the ascites, and in favourable cases the patient makes a complete recovery. The danger of the operation in suitable cases is very small.

The history of the operation presents many points of interest. S. Talma, of Utrecht, suggested the establishment of a collateral circulation in the treatment of cirrhosis of the liver in 1887 or 1888, but published nothing on the subject until some years later. Van der Meulen performed the operation in 1888, and the patient died in a few hours from shock. Schelky made an attempt in 1889, and the patient died on the fourteenth day from peritonitis. These cases were not published. Th. Lens,[1] at the Military Hospital, Paramaribo, Dutch Guiana, operated on a negro, aged sixty-one years, on June 6th, 1891, and the patient lived for nearly six months. There was an alcoholic history, and the diagnosis was "cirrhosis hepatis atrophica." A necropsy was made, and the author's paper is illustrated by two reproductions from photographs showing the *post-mortem* appearances of the organs. The article, although reprinted in pamphlet form, attracted but little attention. Dr. David Drummond, of Newcastle-on-Tyne, independently conceived the idea of the operation, and it is to him and to his colleague, Mr. J. Rutherford Morison, that we are indebted for making the suggestion in a form to ensure its general adoption, and for placing the procedure on a firm scientific basis. Mr.

Morison's first operation was on Sept. 3rd, 1894,[2] his second was on Oct. 22nd, 1895,[3] and the third was on Jan. 12th, 1897.[4] Dr. H. Campbell Thomson, in a paper read before the Royal Medical and Chirurgical Society,[5] states that the operation was first introduced into this country by Morison and Rutherford, but the only Rutherford of whom I can find any mention in this connection is Mr. Rutherford Morison. Talma[6] has published two papers dealing with the operation, one in 1898 and the other in 1900. He appears not to have been the actual operator, but to have delegated the duty to his colleagues, von Eiselsberg and Narath. Alfred Egon Neumann,[7] of Berlin, on Nov. 2nd, 1898, operated on a woman, aged forty-five years, with an alcoholic history, who presented an abdomen distended with fluid and a liver which was hypertrophied, hard, and smooth. In the following January she was gaining flesh, the liver was smaller, there was no ascites, and there were well-developed veins about the umbilicus. On Nov. 4th, 1898, Robert F. Weir,[8] of New York, operated on a man, aged forty-three years, a wine-taster, with a much enlarged liver and spleen. The omentum was stitched on each side of the abdominal wound with catgut sutures, and in addition the antero-superior surface of the right lobe of the liver, the corresponding diaphragmatic part of the peritoneum, and the parietal peritoneum adjoining the wound were freely scraped with the point of a steel hat-pin. The patient died on the fifth day, and at the necropsy extensive peritonitis was found, especially in the pelvis. Dr. H. D. Rolleston and Mr. G. R. Turner[9] have recorded two cases operated on at St. George's Hospital, both in July, 1899. F. Tilden Brown,[10] on Sept. 2nd, 1899, operated on a man, aged forty-three years, who had been a habitual user of alcohol for many years, chiefly in the form of whisky. A five-inch incision was made between the ensiform cartilage and the umbilicus, and a two-inch incision above the symphysis pubis. Through the lower wound a glass tube $1\frac{1}{4}$ inches in diameter was passed into the pelvis behind the bladder. Capillary drainage was provided for by sterile gauze led through the tube. Vomiting was troublesome for the first forty-eight hours, but was controlled by champagne. The patient made a good recovery. In November, 1899, Grinon[11] operated on a woman, aged forty-seven years, with good results, there being a marked venous development on the abdominal wall; and in the following year Bossowski[12] performed the operation on a girl, nine years of

age, the subject of cirrhotic liver. On July 25th, 1900, Charles H. Frazier[13] essayed the operation under a local anæsthetic, but after opening the peritoneal cavity the manipulation caused so much pain that ether had to be administered. Frederick A. Packard and Robert G. Le Conte,[14] of Philadelphia, operated on two cases, both on Oct. 13th, 1900. Their paper is interesting, and to it is appended a list of 22 collected cases. Mr. C. W. Mansell Moullin[15] operated in 5 cases. Two of the patients died, one from pleurisy four weeks after the operation, and the other one week after the operation from exhaustion. The other three patients were discharged relieved ; one was lost sight of, and the other two were alive and well two years after. Amongst the more recent contributions to the subject may be mentioned a valuable paper by Professor H. Ito and Dr. K. Omi,[16] of the University of Kioto, Japan, in which they record their own personal experiences in five cases and append a bibliography of no less than seventy-five references. George Emerson Brewer, of New York, operated on four cases. In the first, that of a woman aged fifty-six years, suffering from cirrhosis and ascites, the upper surface of the small nodular liver and the outer surface of the spleen, together with the opposing parietal peritoneal surfaces, were vigorously rubbed with sterile gauze until they bled freely. The peritoneum on each side of the abdominal wound was also rubbed in the same way, and the omentum was drawn down and firmly held in contact with the denuded surface by means of sutures which closed the abdominal wound. She died two days later from uræmic coma. The second operation was on a woman, aged forty-eight years, with cirrhosis and ascites. The mode of procedure was practically the same as in the previous case, but there was a good deal of oozing of blood from the surface of the liver and spleen, and the patient died in less than twenty-four hours. The third case was that of a man, aged forty years, and he died at the end of five days from peritoneal sepsis. The fourth case was in a man, aged thirty years, with a small, hard, nodular liver and a much enlarged spleen. He died a week after the operation from peritonitis. The last case was in a man, aged forty years, who had tuberculous consolidation at the left apex with cirrhosis of the liver and ascites. It was apparently a very unfavourable case, but he made a good recovery. The author seems to have been unfortunate, there being four deaths out of five cases, but possibly the cases were not selected with sufficient care. To this paper is appended a list of sixty

cases in which the operation was performed, but as the information was obtained for the most part from private sources, and as references are not given, it is difficult from them to arrive at any conclusion as to the value of the operation.

Mr. Walter Spencer operated on the first of my cases on Feb. 20th, 1900, the patient being a girl of twenty. We published a provisional account of the case,[17] and the subsequent history eighteen months later.[18]

Most of the patients operated on have been the subjects of cirrhosis of the liver, but Mr. J. Warrington Haward,[19] of St. George's Hospital, in August, 1897, operated on a woman, æt. forty-nine, the subject of calcification of an adherent pericardium with enlargement of the liver from chronic congestion. The relief was temporary, and the patient died a year later. Dr. W. Ewan showed the specimen at a meeting of the Harveian Society on April 6th, 1899. The "Talma" or "Drummond-Morison" operation seems to be especially indicated in "splenic anæmia," or "Banti's disease." Many of these cases run an acute course, terminating fatally even in a few hours from hæmorrhage, but in others there is ample opportunity for operative interference. It will be remembered that in this disease cirrhosis of the liver and spleen are prominent features.

It is difficult to say in how many cases the operation has been performed, but the number is probably over 100. Packard and Le Conte[20] give the percentage of recoveries as 64·3. George Emerson Brewer[21] has tabulated the results of 60 cases with 38 recoveries. These statistics, however, are not of any great value, for some of the cases were badly selected, and in others the antiseptics were obviously at fault. In the hands of a reliable surgeon the mortality from the operation itself is practically nil. Much depends on the careful selection of cases, and the following guiding principles should be followed :—

(1,) It is important to bear in mind Talma's requirement, that the liver cells should not be too greatly impaired in their functional capabilities, "in order that discredit may not be thrown on a useful operation."

(2,) There should be no unreasonable delay in operating.

(3,) The best results are obtained in the pre-ascitic stage, when the diagnosis rests on the alcoholic history with hæmatemesis and alteration in the size of the liver.

(4,) Good results may be anticipated when the liver is atrophic and there is a fair amount of ascites.

(5,) When there is a history of syphilis the patient should be given full doses of **Iodide of Potassium** with inunctions of **Calomel,** but should there be no improvement in three weeks, further postponement is unadvisable.

(6,) Tuberculosis of the liver is not uncommon in connection with cirrhosis of the liver; but even should it exist, opening up the abdominal cavity is more likely to prove beneficial than to do harm.

(7,) If there is a suspicion of carcinoma, either of the liver tself or of the pylorus, the operation is contra-indicated. In cases of doubt a small incision should be made in the middle line above the umbilicus sufficient to admit the finger, for the purpose of exploring the condition of the adjacent viscera. If carcinomatous deposits are detected the operation should be abandoned.

(8,) The operation should be performed under a general anæsthetic. Frazier's attempt with a local anæsthetic was not a success, and Pal and Eiselberg were not more fortunate.

(9,) Many patients with cirrhosis of the liver have a soft apex systolic murmur, but this is not a bar to the performance of the operation, nor is the presence of a trace of albumin in the urine.

Mr. Spencer operated for me during the winter months on a woman, æt. fifty, the subject of chronic bronchitis, and she made a good recovery. The chart on opposite page (*Fig.* 11) indicates the range of temperature.

References.—[1]*Weekbl. Neder. Tidsch. v. Geneeskünde,* May, 1892; [2]*Brit. Med. Jour.* Sept. 19, 1896; [3]*Lancet,* May 27, 1896, p. 1,427; [4]*Ibid.* May 27, 1899, p. 1426; [5]*Tr. Royal Med. and Chir. Soc.* 1901, p. 260; [6]*Berlin Klin. Woch.* Sept. 9, 1898, and No. 31, 1900; [7]*Deut. Med. Woch.* June 29, 1899; [8]*New York Med. Rec.* Feb. 4, 1899, p. 149; [9]*Tr. Med. Soc.* London, vol. xxiii, 1900, p. 63; [10]*Med. and Surg. Rep. of Presbyterian Hos. New York,* vol. iv, 1900; [11]*Soc. Méd. de Hambourg,* Jan. 16, 1900; [12]*Cent. für die Grenzgeb. der Med. und Chir.* 1900, Bd. iii; [13]*Amer. Jour. of Med. Sci.* Dec. 1900, p. 661; *Ann. Surg.* June, 1901, p. 715; [14]*Amer. Jour. Med. Sci.* March, 1901; [15]*Lancet,* Oct. 19, 1901, p. 1046; [16]*Deut. Zeits. für Chir.* Dec. 1901; [17]*Lancet,* June 16, 1900; [18]*Med. Press,* Jan. 8, 1902; *Lancet,* April 26, 1902; [19]*Brit. Med. Jour.* April 15, 1899, p. 900; [20]*Amer. Jour. Med. Sci.* March, 1901; [21]*Med. News,* Feb. 8, 1902; for references to literature of Banti's disease and its treatment, see *Lancet,* April 26, 1902.

WESTMINSTER HOSPITAL. Date of Admission, November 20th, 1902.

Date and Age of Patient. E. B., Æt. 50. Disease, Hepatic Cirrhosis

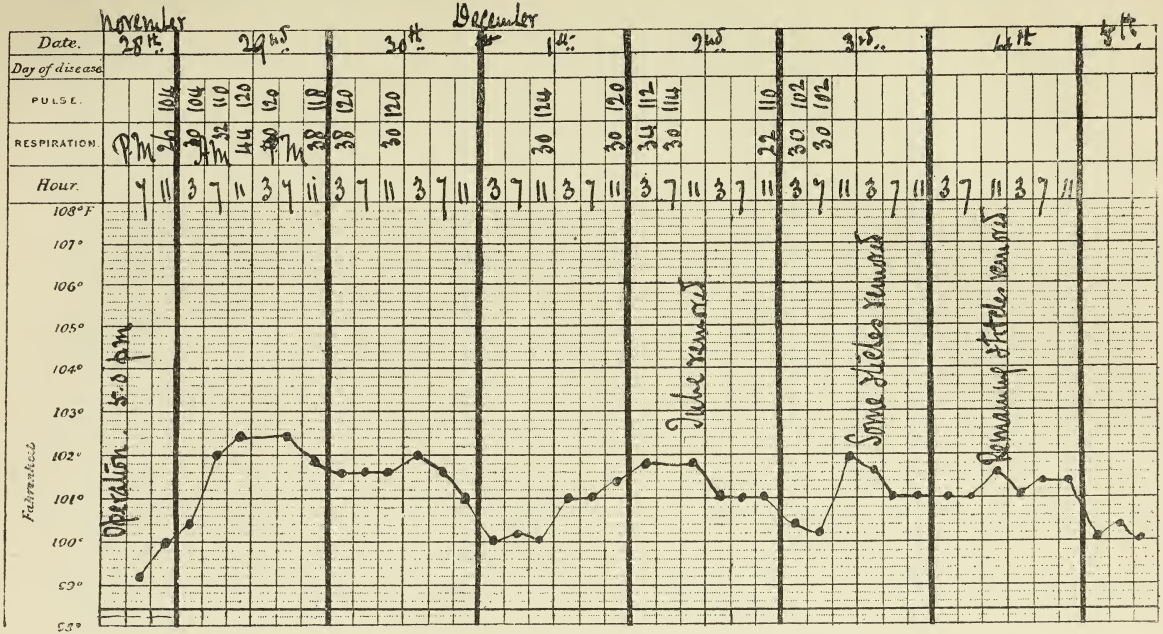


Fig. 11.—Chart in Operated Case of Hepatic Cirrhosis.

COCAINE INTOXICATION. *R. Hutchison, M.D.*

Kailas Chunder Bose[1] has recorded a number of cases of cocaine habit, which he has met with in the course of practice in Calcutta. He describes the effects of the drug thus: The first symptom experienced by the victim after he has taken a dose of cocaine is loss of sensation in the tongue and lips, followed by dryness of the mouth and fauces. A thermometer placed under the tongue does not indicate any rise of temperature. The approach of the so-called hilarity is announced by a feeling of heaviness of the head, throbbing of the arteries of the neck, and palpitation of the heart. The pulse becomes slightly full and quick, but never exceeds 110. At this stage the inebriate likes to be left alone; he firmly closes his lips and avoids talking, lest, in his attempt to do so, the saliva flows out of his mouth. His ears become hot and red, whilst his cheeks become pale; the tip of the nose becomes cold, perspiration soon breaks out on the forehead and neck, and the height of intoxication is marked by coldness of the finger ends and dilatation of the pupils. This stage lasts from thirty to forty-five minutes, after which the victim longs for a fresh dose, and unless he gets it feels lifeless and dejected. This depression of spirits is more imaginary than real, for he has not noticed any fall of temperature or slowness of the pulse, but the respiration becomes slightly hurried. The tongue and lips now become moist again, and perspiration on the forehead ceases altogether, but the pupils remain dilated. The physiological effects of cocaine are most marked upon novices. The teeth and tongue of confirmed cocaine eaters turn jet black, and this is probably due to the chemical change produced by the action of lime and saliva upon cocaine.

Unlike opium, cocaine brings on insomnia and anorexia, soon followed by dyspepsia and diarrhœa. The dyspepsia of a cocaine inebriate is very obstinate, and does not readily yield to treatment. Prolonged use brings on some deafness. The quantity of urine is diminished, but in none of his cases was albumin detected. Delusions and hallucinations often occur, and cause dejection and dread. In some cases cocaine brings on acute mania, which is not amenable to treatment.

The action of cocaine upon the nerve centres is slightly stimulant at the commencement, but this effect is only temporary, lasting from fifteen to twenty minutes, and is then followed by a feeling of depression, which gradually passes into complete lethargy and inertia. The power of control is gradually lessened.

The virile power is lost. The action of the drug upon the heart and vascular system is depressant. In all his cases irregularity in the rhythmic action of the heart was noticed. The circulation becomes languid. Loss of appetite and failure of digestive power is marked. Emaciation results from want of nutrition. The craving for increase of the dose becomes irresistibly great, the secretion of urine is greatly lessened, and effete materials are consequently retained ; the impurity of the blood disturbs the functions of the brain, causing insomnia and loss of memory. Persistent functional disorder gradually leads to structural changes ; the victims suffer from delusions, hallucinations, and mental aberration. So long as the inebriates take cocaine in moderate doses, they do not manifest toxic symptoms. Unlike opium, cocaine eaters soon become useless members of society, and at times their lives become a burden to themselves.

TREATMENT.—The writer believes that the attempt to break the cocaine habit by substituting sulphonal or chloral is to induce the inebriate to consume both. The only remedy lies in locking the patient up in an asylum and stopping his cocaine altogether.

REFERENCE.—[1]*Brit. Med. Jour.* April 26, 1902.

COCCYGODYNIA. *Priestley Leech, M.D., F.R.C.S.*

Noble Smith[1] has an article on this subject. The condition is probably always caused by some distinct disorder, either of the bone itself or its immediate surroundings ; it may be due to anal or rectal troubles, or disease of the bone, or chronic neuritis resulting from some previous injury. It is sometimes associated with hysteria, and may be a reflex manifestation of some pelvic disease. The coccyx may be injured or fractured by direct blows, and especially by falls in the sitting posture ; the bone may be thus fractured, and may become carious and exfoliated. It may be injured in parturition. Ankylosis of the sacro-coccygeal joint may occur, and inflammation of the joint may be chronic or acute.

In the *acute* stage pain may be relieved by **Rest in Bed, Morphia** suppositories, and **Hot Fomentations.** Care should be taken that the bowels are not kept confined. If the bone is displaced, it can be easily replaced as a rule. But it is sometimes difficult to prevent recurrence of the displacement ; or complete dislocation may resist all efforts at reduction, and may necessitate removal. In *chronic* cases some care is required in making a diagnosis ; the symptoms may be obscure, and frequently involve a general

disturbance of the nervous system. There is generally a difficulty in sitting down. Patients complain that they are never comfortable when sitting evenly on a chair, and there is a tendency to sit sideways.

Various remedies have been proposed, but **Excision of the Bone** is the only certain cure. This is best done by a posterior incision, and the only point needing care is injury to the rectum, which lies very close to the anterior surface of the bone. Details of cases are given.

REFERENCE.—[1]*Med. Press*, Oct. 1, 1902.

COLITIS (Membranous). *R. Hutchison, M.D.*

Dr. Michael Foster[1] is of opinion that our first object in dealing with this affection must be the treatment of the neurasthenic element. A fair amount of **Exercise** should be taken, but with rest before and after meals. The **Food** should be plain and digestible; vegetables should be given in *purée*, and fruit juice in preference to the whole fruit. Too strict a limitation seldom answers, and he has never seen much improvement on a purely milk diet. Alcohol in any form is, as a rule, best avoided. In the acute attacks attended with fever, rest in bed and a liquid diet are desirable. **Morphine** may be necessary in these circumstances, but its use must be most jealously guarded. The bowels must be regulated; castor oil in drachm doses is very useful, and may be frequently repeated. In most cases enemata are beneficial. These may be simply soap and water; a less irritating and often more successful method is the injection of from four to six ounces of olive oil. Medicated or astringent clysters are generally useless. **Bael,** in drachm doses of the confection, is sometimes useful; it appears to assuage the colicky pains and lessen the constipation. Bismuth is of very little use. **Opium** should be given only during an acute attack. Sir Dyce Duckworth recommends **Aromatic Sulphuric Acid** in doses of from 20 to 30 minims. **Iron** is rarely well borne, and its administration should always be preceded by a blood count, as the pallor of the skin is apt to lead to an erroneous conclusion as to the true condition of the blood. So-called **Nerve Tonics** are useful; strychnine should be given with caution; silver nitrate in doses 1-32 of a grain is sometimes of great service.

Many cases derive great benefit from the **Baths of Plombières,** in the Vosges. The waters are mildly alkaline, containing traces of silica and arsenic, and issuing from the earth at a temperature of 51

degrees C. Their value probably consists more in their method of employment than in their chemical composition. The treatment consists in the administration of warm baths, with a view to calming the nervous erethism, coupled with a course of "douches ascendants." The "douches ascendants" are large enemata of natural mineral water, which are given in the horizontal position. Elaborate and very efficient arrangements are made for regulating the temperature and rate of flow. The quantity injected is from ¾ to 1½ litre; and during the operation the patient is turned from side to side, in order, as it were, to irrigate the colon. Another manœuvre employed is the *douche sous marin*. This is a douche of warm water, which is applied to the patient's abdomen while he is in the bath. The water of the bath acts as a buffer, and a form of massage is the result. A healthy person feels definite peristaltic contraction taking place during this treatment. In addition, the patients are treated with a generous and nourishing but carefully prepared dietary. The results are undoubtedly very good, and in chronic cases sensibly hasten the cure. In the more hopeless cases Hale White advocates the performance of a right-sided **Colotomy,** in order to give the bowel rest. Where milder remedies have failed, operation should never be too long delayed; even with all discomforts, it affords a chance of escape from greater misery

REFERENCE.—[1]*Edin. Med. Jour.* Feb. 1902.

CORNEA (Affections of). *E. H. Holthouse, M.B., F.R.C.S.*

Hypopyon ulcers and their treatment have recently been the subject of much attention. Williams[1] points out the futility of the old-fashioned methods of dealing with them by hot belladonna fomentations, atropine, and a wet compress. To these were sometimes added the operation of partial evacuation by means of a broad needle. Failures were the rule, because the operative procedure was wrong in principle, and the antiseptic method had no place. He describes the plan of treatment which is now a matter of routine at the Liverpool Eye and Ear Infirmary. In an early stage, before the pus in the anterior chamber has become agglutinated and fibrous, one drop of a solution of **Quinine and Atropine** (4 grains of the former to an ounce of the pharmacopœial solution of the latter) is instilled into the eye every three or four hours or oftener. A pad and bandage is applied, and in many cases the hypopyon disappears in the course of two or three days, and the ulcer goes on healing.

If, however, the hypopyon shows signs of increasing, the pus is evacuated. This is done with a Graefe's knife inserted just behind the sclero-corneal margin at its lowest part, the edge looking forward and being at right angles to the corneal surface. It is then thrust into the anterior chamber through the hypopyon until the point is near the lower edge of the pupil, and made to cut its way out rather rapidly through the cornea. It is only when the eyeball has lost its normal tension that the anterior chamber fails to evacuate itself by this incision. The **Actual Cautery** is sometimes used in sloughing cases. The use of the quinine drops is recommended as an antiseptic, and the radial incision above described, because (1) Complete evacuation is thereby effected with union by first intention ; (2) Prolapse of the iris is impossible.

R. J. Hamilton,[2] recalling Leber's Bowman lecture for 1892, emphasises the septic nature of the affection, and the necessity of arresting its septic progress by attacking both the point of infection and the deeper-seated inflammation. For the latter he advocates sub-conjunctival blood-letting by **Peritomy,** a proceeding most beneficial in the early stages, when hyperæmia of the iris and ciliary congestion are present. For the former he relies upon the **Cautery,** which not only destroys the centre of infection, but greatly relieves the pain by destruction of the inflamed nerve endings, and has also some effect upon the pus cells in the anterior chamber, "thermolysis" as it may be termed. The use of atropine is deprecated in deeply excavated ulcers, ulcers at the margin, and in old people.

P. Petit[3] urges the importance of early cauterisation to check the progress of infection. To this should be added treatment by hot antiseptic lotions of **Cyanide of Mercury** 1-1000. The iritis and the hypopyon must be combated by instillations of **Atropine,** by hot compresses, and by **Paracentesis** if necessary. Finally, lacrymal complications must be the object of special attention.

A. Maitland Ramsay[4] gives a valuable exposition of the pathology of this form of ulcer, describing the course of the infective process from the surface to the deeper parts. In regard to treatment, he does not resort to the **Cautery** until the ulcer, after twenty-four hours of medical treatment, shows no signs of improvement. It should then be applied without delay. The infiltrated spreading edge of the ulcer must be destroyed, and, as the infection of the cornea extends beyond

the apparent margin, the cautery must be applied just outside thereof, after it has been defined by means of fluorescin. As the healing of the ulcer will be greatly promoted by the reduction of the intra-ocular tension, the cornea should be incised at its lower aspect, and the anterior chamber emptied slowly.

Neuro-paralytic keratitis.—An interesting account of a case of this affection, and its cure by **Tarsorrhaphy,** has been given by M. Terson,[5] of Toulouse. The patient, a man of thirty-nine, who had acquired syphilis nineteen years before, suddenly lost consciousness, and remained in a state of semi-coma for four days. Right facial paralysis without hemiplegia was recognized, and mercurial inunction ordered. A few days after, however, there appeared at the lower part of the right cornea an opacity, which rapidly approached the centre, so that in a very short time the eye was entirely deprived of useful vision. Twenty days later the centre of the cornea was occupied by an abscess on the point of perforation, and the lower third of the anterior chamber was filled by a hypopyon. Vision of the right eye was reduced to bare perception of light. The cornea and eyelids were absolutely insensitive. The general condition of the patient, further, was deplorable, and showed signs of severe cerebral and spinal syphilis. This condition was treated by uniting the lids in their inner two thirds, from the puncta lacrymalia to a point opposite the outer border of the cornea. In a few days the eye had greatly improved. General treatment was kept up for six months, at the end of which time the facial paralysis and anæsthesia had entirely disappeared. The adhesion between the lids was then divided, leaving only a small band close to the puncta lacrymalia, which effectually prevented any risk of their future eversion, without disfiguring the patient.

REFERENCES.—[1]*Brit. Med. Jour.* Oct. 26, 1901; [2]*Ibid.*; [3]*New York Med. Jour.* Nov. 11, 1900; [4]*Med. Press.* Dec. 18, 1901; [5]*Treatment,* July, 1901.

CORYZA. *W. Milligan, M.D.*

To abort an attack Nassauer[1] recommends rinsing the nasal passages with a warm solution of **Permanganate of Potash.** The nostrils should then be plugged with wool, the plug being inserted as far back as possible, and filled with the solution, which should be allowed to remain *in situ* for an hour.

REFERENCE.—[1]*Laryngoscope,* Feb. 1900.

CRYOSCOPY.

R. Hutchison, M.D.

The determination of the freezing-point of fluids has recently been introduced as a method of clinical examination on the continent, and its scope and utility are dealt with in papers by Dr. Léon Bernard[1] and Prof. Alex. Ogston.[2]

Van't Hoff and Raoult pointed out that fluids freeze at a lower temperature in proportion to the quantities they contain of impurities dissolved in them; and Korányi, applying the law to the blood and urine, showed that normal blood possessed a fixed freezing-point of 0·56° C. below that of distilled water, which forms the zero of that thermometrical scale. From this point it does not vary more than by one-hundredth of a degree up or down. Urine is not so steadfast, varying in its freezing-point about a whole degree, from 1° to 2° C., in proportion to the solids which it contains in a state of solution.

Korányi's observations have been applied to the study of abnormal blood by many German and French writers—Lindemann, Dreser, Richter, Roth, Senator, Claude, Balthazard, and Kümmell, particularly by Kümmell, an eminent Hamburg surgeon. Their conclusions may be thus briefly stated. So long as the blood is healthy and has its effete constituents adequately eliminated it retains, as already said, its normal freezing-point—*viz.*, 0·56°, or within $\frac{1}{100}$° of that figure, varying, that is to say, from 0·55° to 0·57°, but if elimination becomes defective the freezing-point sinks below this—to 0·58°, 0·60°, even to 0·71° in one case observed by Kümmell.

The determination of the freezing-point is carried out by Beckmann's apparatus, consisting of a jar of ice and salt into which dips a large test-tube, into the mouth of which is inserted through a perforated cork a smaller test-tube about an inch in diameter, so that an air-chamber is left between the tubes. The fluid to be frozen is put into the inner tube. The thermometer used is Beckmann's thermometer, the scale of which has a range of only 6° C., each degree being divided into hundredths, the numbers running from 0·00° to 6·00°. On this scale the zero, that is, the freezing-point of distilled water, has first to be found, distilled water being for this purpose placed in the inner tube, and the thermometer plunged into it until its bulb is covered. The freezing mixture cools the fluid, and the mercury first falls down to, and then descends a couple of degrees or so below the freezing-point. At the moment at which congelation begins the mercury rises again quickly, and within a few minutes attains a

steady maximum, which is the true freezing-point. During this observation the fluid is kept constantly stirred by a ring-shaped platinum stirrer that passes down between the inner tube and the thermometer. If the zero thus found be above the six degrees given on the scale, a little mercury is shaken off the column into a reservoir which exists for the purpose at the upper end of the thermometer ; or if, on the other hand, it be below the scale, some mercury is shaken from the reservoir into the column, until the zero falls somewhere in the upper end of the scale. This point is then noted, and all calculations of temperatures below zero are found by subtracting from it. If, for instance, the zero were 4·01°, then the normal freezing-point of blood is 3·45°, that is 0·56° lower.

The sample to be tested may be drawn from any large vein about the hand, wrist, or forearm, or in the usual venesection position at the bend of the elbow. It may be drawn directly into the apparatus or, better, into a stoppered bottle where it can be secured until the cryoscopy is conveniently applicable. Coagulation makes no difference to its freezing-point, which is found in the manner just described for obtaining that of distilled water. When once the zero of the thermometer has been accurately determined it is necessary that it be carried very gently and subjected to no jarring or agitation, lest its correctness be impaired by shaking mercury into or out of the column. As the instrument is made of Abbé's glass, the zero remains without alteration from subsequent contraction.

The estimate of the clinical value of this method given by the two writers mentioned above is very different. Bernard considers that it has only a very limited clinical application. It may be used to recognize the functional variations of the circulatory system, and may be expected in the future to be of service in diseases of the heart and kidney. He claims that its teachings are more precise than those of other methods, and that it has penetrated deeper into certain obscure questions, such as the pathogenesis of uræmia. On the other hand, its application to the study of normal and pathological serum fluids has so far given uncertain and contradictory results, and it cannot be regarded as at present serviceable in their clinical study. Ogston is much more enthusiastic. He considers that in regard to the blood it would be difficult to exaggerate the usefulness of cryoscopy, or the accuracy of the information which it places at our disposal. In the following paragraph

he indicates the kind of service which it may be expected to render :—

" That our present information regarding kidney elimination is inadequate, is constantly felt by surgeons where renal disease is present in a patient requiring operation. We strive in such a case to ascertain how much disease exists ; whether the amount of healthy kidney substance be still sufficient so to purify the blood that our operation wounds will heal well ; further, whether the lessened kidney elimination that follows operations, especially if performed under an anæsthetic, superadded to the already existing defect, is likely to kill our patient ; and, lastly, where the kidney itself is to be operated on, whether the other kidney be sound enough to take over the eliminative work of the two organs. To all these questions, hitherto imperfectly answerable, the use of cryoscopy promises to furnish a definite and satisfactory reply. I believe, too, that it will prove to be of no less value in determining the existence and degree of hepatism, when threatening danger to life or imperilling operations, a condition regarding which little that is satisfactory has hitherto been written, although its importance is acknowledged by every surgeon of experience."

References.—[1]*Rev. de Méd.* No. 2, 1902 ; [2]*Lancet*, Nov. 9, 1901.

DEMENTIA PRÆCOX. *James Shaw, M.D.*

Etiology.—In Dr. Masselon's cases[1] the causation was obscure, but a hereditary taint—neurotic or insane—could often be traced. Dr. Pickett,[2] in a study of 284 male insane patients between fifteen and thirty years of age, excluding imbeciles, epileptics, and general paralytics, obtained a degenerate history in more than three-quarters of that number. Dr. Hill[3] states that masturbation is often assigned as the cause.

Diagnosis.—Masselon (*loc. cit.*), in his thesis, gives detailed clinical records of thirteen cases observed by him, and states that since Kraepelin called attention (1894) to the unity of a group of mental affections occurring in adolescence, and marked by mental enfeeblement, apathy, and aboulia (loss of volition), a critical reconstruction of facts recorded by various observers has enabled psychiatrists to recognize four forms of adolescent insanity or dementia præcox : (1) A simple form without delusions ; (2) A delusional form—hebephrenia—marked by excitement intermingled with depressive hallucinations, terror, and confusion of ideas, the symptoms being most fugitive and varying from moment to moment ; (3) A catatonic form first described

by Kahlbaum, and marked by stupor, cataleptic postures, incapacity for attention to surroundings, and either speechlessness or verbigeration ; (4) A paranoidal form in which sensory disturbances and delusions rapidly develop and progressive mental enfeeblement appears. Among the commoner physical signs are dilated, sluggish pupils and exaggerated knee-jerks. The age of onset varies from seventeen to twenty-five years in both males and females, but in married women may be a little later—twenty-six to thirty.

Prof. Serbski[4] limits the disease to adolescence, rather unwarrantably, and takes Kraepelin to task for extending it beyond that age. Serbski says that whilst typical cases are easily diagnosed, others are sometimes very difficult, and that at present we cannot differentiate between dementia præcox and secondary dementia occurring in adolescence. Certain signs indicated by Kraepelin are not constant, and besides are found in other mental forms. Such signs are : Increased reflexes and unequal pupils—these only show the gravity of the affection ; automatism ; negativism (senseless resistance to any external influence) ; stereotypias (stereotyped use of certain movements, gestures, phrases, etc.). Dr. Pickett (*loc. cit.*) found that the anatomical marks of degeneracy were common.

Dr. Dunton[5] describes very fully a case of the catatonic form. The first mental change was that the patient, aged thirty-one, went to communion, and afterwards said she had done wrong in going. This worried her, and she accused herself and husband of wrong-doing. She began to neglect her household duties and to sit brooding. She acquired terrifying delusions and auditory hallucinations. Briefly summarized, the other symptoms were : Exaggeration of tendon reflexes ; weakening of heart's action ; cyanosis ; decrease of weight while patient was taking nourishment well ; negativism present, but not specially marked ; catatonic rigidity ; stereotypias verbigeration (repetition of meaningless words or phrases) periods of depression, with attacks of boisterousness.

Kraepelin gives, in addition to the symptoms already mentioned : Epileptiform attacks in 18 per cent of all cases, more common in men ; apoplectiform attacks ; hysterical attacks ; paralyses ; chorea-like movements ; disturbed sleep ; skipped or irregular menses ; increased saliva.

Dr. Kaiser[6] points out as the differential diagnosis between

hysteria and catatonia (which many authorities, unlike him, now regard as a syndrome occurring more frequently in dementia præcox than elsewhere, and not as a distinct disease), that in catatonia there is a childish mental weakness, a state of depression with few ideas, passing into dementia, which contrasts with the selfish caprice, cunning, and persistence of purpose in the hysterical patient.

Prognosis.—In Masselon's cases (*loc. cit.*) the recovery-rate was low, 8 per cent in the hebephrenic and 13 in the catatonic. Pickett (*loc. cit.*) lays stress on the tendency to dementia as the prominent characteristic of the insanities of puberty. In his series less than one-fourth left the hospital restored, many of these probably continuing "psychic cripples."

Treatment.—Bourneville and Bellin[7] report the case of a young girl of neurotic and insane heredity, who had had mystical delusions with attacks of depression and maniacal excitement, and who recovered under treatment with **Baths, Douches, Chloral** and **Bromides,** followed by general **Exercises,** occupation, etc. Dr. Sprague[8] believes that **Thyroid** should be tried in all cases of his primary dementia, which corresponds closely with Kraepelin's dementia præcox. Serbski (*loc. cit.*) thinks that **Serum-therapy** and **Organo-therapy** will perhaps play an important *rôle* in the future. For the present he advises general regime, employment (mechanical and other), open-air and country life. He, with Neisser and Korsakoff, believes that bed-treatment should be limited to the acute stage, and promptly discontinued with its disappearance.

References.—[1]*Brit. Med. Jour. Epit.* May 17, 1902 ; [2]*Jour. Nerv. and Ment. Dis.* ; *Jour. Ment. Sci.* Jan. 1902 ; [3]*Trans. Amer. Med. Psych. Assoc.* ; see *Jour. Ment. Sci.* Oct. 1901 ; [4]*Jour. Ment. Path.* May, 1902 ; [5]*Amer. Jour. Med. Sci.* Jan. 1902 ; [6]*Allg. Zeit. f. Psych.* ; see *Jour. Ment. Sci.* July, 1902 ; [7]*Arch. de Neurol.* ; see *Jour. Ment. Sci.* Jan. 1902 ; [8]*Jour. Ment. Sci.* Oct. 1901.

DIABETES. *Prof. R. Saundby, M.D., M.Sc., LL.D., F.R.C.P.*

Etiology.—Some years ago Dr. A. H. Smith[1] read a paper before the New York Academy of Medicine in which he sought to show that *engine-drivers* suffer as a class disproportionately from this disease, and he attributed this liability, in part at least, to the anxious nature of their work. The writer of this article endeavoured to ascertain how far English experience supported this opinion, but he could not find that English

railway surgeons had had their attention directed to the subject. However, on examining the statistics of the causes of death among the engineers employed by the L. and N.W. Railway Co. he found that the mortality from diabetes was twice as great as that among men of the same age in the general population. More recently Dr. Smith has returned to this subject, and states that the American Brotherhood of Locomotive Engineers find the proportion of diabetics among their class to be five times as great as that among the average of the population. Of course such statements are at present too vague for criticism; there is no evidence that due allowance has been made for age, sex, and other factors which are of great importance. But the point is of interest, and is one upon which further data might be obtained.

Since Klemperer first suggested that some cases of diabetes might be due to the action of the renal epithelium, such as is believed to cause the elimination of sugar which follows the administration of phloridzin, little clinical evidence has been forthcoming in favour of the actual occurrence of such a type of disease. Luthje has, however, recently published[2] a case for which he thinks this title may fairly be claimed, as there was no sugar before the appearance of the kidney affection, while shortly after its commencement glycosuria supervened; the amount of sugar excreted did not depend upon the quantity of carbohydrates taken as food, and the sugar in the blood was diminished.

According to G. Zuelzer,[3] glycosuria invariably follows the hypodermic injection of dried suprarenal extract dissolved in water; even when all carbohydrate food is withheld or the animal for the time being is starved, the quantity of sugar in the blood is increased. Disease of the suprarenal capsules has not been demonstrated to occur in diabetes, and even in those cases which are associated with pigmentation of the skin these organs have been found healthy, but the data on this head are scanty. Too much must not be inferred from the result of treatment, but Mimi[4] has recorded a case of bronzed diabetes cured by the administration of tabloids of **Suprarenal Capsule.**

Blum[5] also claims to have discovered a substance in the suprarenal capsules which, when introduced into the circulation, is capable of causing glycosuria and increasing the blood pressure. Dogs fed exclusively on meat excreted 4 per cent of sugar. The glycosuria thus induced lasted one or two days, but persisted

longer if the injections were repeated. When the animals were starved, very slight or no glycosuria resulted, so that he attributed the effect of this substance to its action upon the liver, although it should be noted that the elimination of sugar increased when fat was added to the food. He therefore believes that the capsules play an important part in the causation of certain cases of diabetes, especially of bronzed diabetes.

Lépine and Boulud[6] have isolated from the urine of diabetics a crystallizable substance which causes glycosuria when injected under the skin, and which when mixed with blood hinders the normal glycolysis. Further experiments have shown that this substance is destroyed in its passage through the vessels of the living pancreas, and the authors believe that that organ possesses in health the power of destroying this substance, and that when it is diseased or excised, normal glycolysis is hindered and glycosuria ensues. We may compare these conclusions with the results of Tuckett's experiments,[7] which showed that lymph obtained from the thoracic duct during the height of digestion causes glycosuria when injected into the portal vein ; and it is possible that the substance isolated by Lépine and Boulud is the same as that contained in the thoracic lymph.

Walsh[8] has published a case of diabetes which showed notable improvement after several courses of the **Superheated Air** treatment. The patient weighed 12 stone, and had not lost weight during the previous twelve months upon which he had been taking a mixed diet containing a considerable amount of carbohydrate. There was an improvement in general health, but the sugar did not entirely disappear, and although the hot-air treatment may be fairly credited with the general improvement, the diminution in the amount of sugar is not more than the fluctuation often seen in chronic cases.

The writer of this article[9] has recently returned to the subject of the relation of alcohol to glycosuria and diabetes. In his opinion many of the cases of chronic diabetes in elderly persons are really due to alcohol, and the failure to recognise this is at the bottom of a good many fallacies in regard to treatment. The relationship of alcohol to diabetes has been much disputed ; among those who either ignore or deny it are such authorities as Dickinson, Pavy, Senator, Tyson, and Von Noorden ; but on the other hand George Harley, Lenné, Williamson, Strümpell, Strauss, and the present writer admit the connection, and most of these have published evidence in

support of their opinions. In a lecture delivered at the London Polyclinic three years ago the present writer gave four illustrative cases, and in the recent communication he has added five others, of which the following may be taken as an example :—A man, aged 45, complained of thirst and polyuria of a fortnight's duration. He was well developed, weighed 14 stone, and had not lost flesh ; his urine gave a sp. gr. of 1028, and was loaded with sugar. He was the agent for a brewery, and had been in the habit of drinking a great deal of beer, he had lately reduced this to six glasses of beer daily, with one or two of whisky ; on making a further reduction the sugar entirely disappeared. It is probable that alcoholism explains many of those cases of glycosuria in elderly persons where no other symptoms of diabetes are present, but which are called diabetes on account of the persistent presence of sugar. It is well, therefore, to enquire carefully into the patient's habits, as in many instances a complete cure can be effected if the abuse of alcohol can be checked.

Dawson[10] has recorded the case of a woman who suffered from recurrent melancholia with diabetes. Under treatment for the latter disease her mental condition improved, and she was discharged recovered in about two months. The diet had been persisted in, and she had remained unusually well for about a year.

Marinesco[11] has described a case of *diabetes insipidus* due to the presence of a glio-sarcoma in the floor of the fourth ventricle. The patient was a man, aged twenty-eight, who received a severe injury to the vertebral column, and some days later became affected with excessive thirst and polyuria, without glycosuria. Five months later he died suddenly, and at the *post-mortem* examination the floor of the fourth ventricle was found to be the seat of a new gelatinous growth which contained a large hæmorrhage.

Relation between Diabetes Insipidus and Diabetes Mellitus.—Kühn[12] has described the case of a woman, aged fifty-eight, whose left breast was removed in 1900 for scirrhus. At the beginning of the next year she began to suffer from *diabetes insipidus*, and passed large quantities of urine, sp. gr. 1002 or 1004, containing no sugar ; the maximum amount of urine was 357 oz., and there was at times some pyrexia. In May, 1901, the quantity of urine diminished and glycosuria appeared, her general condition became rapidly worse, and she died on May

28th. The autopsy showed secondary growths in many of the internal organs, and atrophy of the pancreas. A good many cases are on record showing similar transition from one form of diabetes to the other. Such a change is readily enough explained according to those theories of diabetes which localize the starting point of the disease in the floor of the fourth ventricle. In this case there was atrophy of the pancreas, and it is possible that it was the supervention of this condition to which the development of glycosuria should be properly attributed.

Treatment.—Professor R. Lépine[13] proposes to classify diabetes for purposes of treatment into: (1) Cases without diacetic acid in the urine; and (2) Cases with diaceturia. The former class requires, according to him, merely such restriction of diet as is sufficient to maintain nutrition and keep the symptoms in abeyance. He divides this first class for prognostic purposes into cases in which the sugar disappears entirely on strict diet, and those in which it is only diminished. He considers the latter division not altogether free from danger of passing into Class 2. He believes that fat may be a source of acetone, and would not allow its unrestricted use. In Class 2 he recommends the use of **Gluconic Acid** for impending coma, and relates a case in which 70 grms. of this substance dissolved in half a litre of water neutralized with bicarbonate of soda were administered to a patient who had lost consciousness, 40 grms. of bicarbonate of soda being also administered by the mouth and bowel. Although the urine was still acid, consciousness returned, the dyspnœa disappeared, and the patient remained better for three weeks; but after an increased quantity of fat in his diet—600 grms. (20 oz.) of beef fat in three days—the acetonuria returned, and there was a second attack of coma with dyspnœa. Five hours after the commencement of this fresh attack 50 grms. ($1\frac{2}{3}$ oz.) of gluconic acid were administered in alkalinized water. This treatment was again followed by recovery, which lasted fifteen days, when coma again supervened; and as there was no gluconic acid available the patient was treated exclusively by bicarbonate of soda, but died on the third day. The case is interesting, and although it is not in itself enough to prove the value of the remedy, yet, in face of the fact that diabetic coma is one of the most fatal complications, it is highly desirable that supplies of this substance should be available, and that it should be given a trial when opportunity arises. As it is not easily obtained, opportunities for trying this plan of treatment have

not been very frequent; at least no reports have come to hand which enable us to give the results of clinical experience with this remedy.*

In the treatment of coma, Dr. R. T. Williamson[14] relies chiefly upon the use of **Bicarbonate of Soda** by the mouth, giving as much as 2 oz. in twenty-four hours. He recommends that rigid diet should be discontinued, and finds milk and cream the most useful articles of diet. He thinks it is advisable to administer brandy and small doses of **Digitalis,** and where the bowels are constipated, which is usually the case, he gives a mild purgative or enema. The value of alkalies is generally recognized, but in the view of the writer of this article, the better method of administration is a large, warm, alkaline enema; an ounce of bicarbonate of soda should be dissolved in half a pint of hot water and injected slowly into the rectum. If this should be returned, and very often it acts as a purgative, it should be repeated. **Gluconic Acid,** where available, should certainly be tried.

M. Mossé[15] has done good service by drawing attention to the value of **Potatoes** as a substitute for bread in the treatment of mild cases of diabetes. He points out that potatoes contain a smaller percentage of carbo-hydrates than even gluten bread, are more palatable, and of course are very much cheaper. Twelve ounces of potatoes contain about 1200 grains of starch, and this quantity divided between three meals daily as a substitute for bread satisfies many patients, and certainly is tolerated better than an equivalent quantity of toast (4 oz.), which would be less satisfying to the patient. Doubtless, no general rule can be laid down which has not exceptions, and in this, as in other points in the treatment of diabetes, we must look out for personal idiosyncrasies, and judge of the effects of the diet by careful examination of the urine. M. Mossé goes a good deal further than this, and contends that potatoes are actually beneficial to diabetics, and contain some curative principle; but this statement is at least open to doubt.

A very interesting paper has been contributed by Mr. Faulds[16] on **Eucalyptus** in the treatment of diabetes. The suggestion was due to the late Mr. James Dick, a Glasgow millionaire, who was travelling in New Zealand, and there met a former school-

* Since writing these lines a fatal case has occurred in the writer's practice, in spite of early and energetic treatment with gluconic acid and alkaline enemata.

fellow who told him that he had been cured of diabetes by an old Maori woman after the local doctors had failed to do him much good. The remedy was an infusion of the leaves of the eucalyptus tree, and Mr. Dick brought some of the leaves home with him and induced Mr. Faulds to give them a trial. An infusion of a tablespoonful of the broken, dried leaves of eucalyptus globulus was made in a teapot by adding 6 oz. of boiling water, and this was allowed to stand for half an hour. The dose was taken twice daily, and out of 46 cases upon which Mr. Faulds tried it, in fifteen it was followed by total disappearance of the sugar. The substitution of eucalyptus oil and eucalyptol produced no effect at all, and Mr. Faulds is unable to indicate the constituent of the leaves to which the therapeutic effect is due. This remedy (following the plan recommended by Mr. Faulds) has been tried in a good many cases by the present writer, but not the slightest effect has been observed from it; it must therefore be classed among the numerous "popular" remedies for diabetes which do not fulfil the expectations raised by popular report.

Dr. James Tyson, of Philadelphia,[17] urges the importance of seeking for remedies which promote oxidation, and for this he recommends the use of **Arsenic,** in small doses long and uninterruptedly continued. He also approves of **Massage, Bathing,** and **Exercise,** and considers the effect of **Codeine** and other opium derivatives to be due to their influence upon the metabolism of glucose.

Von Noorden,[18] in a recent paper, has given the following suggestions for treatment: He recognizes the value of **Jambul,** in drachm doses of the extract taken in water before the mid-day meal and at bedtime. He says that while it has no marked action on the elimination of sugar, it is yet of service when combined with dietetic and other hygienic measures. He believes that where it is undesirable to restrict very greatly the quantity of carbohydrates, **Sodium Salicylate** or **Aspirin** will hold in check the excretion of sugar. Warm **Carlsbad Water** or even ordinary warm water may often be of service where there are dyspeptic symptoms. He recommends **Salicylic Acid** compounds for pruritus; **Bromides** for insomnia and palpitation; **Antipyrine** for neuralgia; and **Bismuth Salicylate** or **Thioform** for flatulence, dyspepsia, and diarrhœa.

References.—[1]*Med. Rec.* April 6, 1901; [2]*Münch. Med. Woch.* March 30, 1901; [3]*Berlin klin. Woch.* Dec. 2, 1901; [4]*Rivist.*

Crit. di Clin. Med. March 6, 1901 ; [5]*La Sem. Méd.* 1902, p. 148 ; [6]*Lyon Méd.* No. 1, 1902 ; [7]*Jour. Phys.* vol. xxv ; [8]*Med. Press*, Jan. 15, 1902 ; [9]*Birm. Med. Rev.* 1902, p. 129 ; [10]*Brit. Med. Jour.* Jan. 4, 1902 ; [11]*Arch. Orient.* March, 1900 ; [12]*Münch. Med. Woch.* Jan. 21, 1902 ; [13]*La Sem. Méd.* 1901, p. 361 ; [14]*Med. Chron.* Aug. 14 ; [15]*Bull. de l'Acad. de Méd.* 1901, No. 41, p. 769 ; [16]*Glasgow Med. Jour.* May, 1902 ; [17]*New York Med. Jour.* April 30, 1901 ; [18]*Amer. Jour. Med.* May, 1901.

DIABETES AND GLYCOSURIA (Surgical Aspects).

Priestley Leech, M.D., F.R.C.S.

The presence of sugar in the urine of a patient is not at the present time the bugbear to surgeons that it formerly was. Phillips[1] reviews the whole subject. The most useful classification from a surgical point of view he thinks is that of Smith and Durham, which divides cases under the following heads :—

(1,) The glycosuria is caused by the surgical lesion.

(2,) The glycosuria causes the surgical lesion.

(3,) The two are independent and do not influence each other.

(4,) The cases in which the glycosuria exerts a baneful influence upon the other disease or injury.

The presence of sugar in the urine may be permanent or temporary ; it may come on after certain surgical diseases or injuries ; it may be due to drugs (opium and chloroform), or it may be of alimentary origin.

As a complication of surgical injuries and diseases, glycosuria may occur in injury and sepsis, *e.g.*, injury of the central nervous system, fractures, operations ; inflammations of various kinds (cellulitis, lymphangitis, erysipelas), carbuncle, gangrene, and septicæmia ; ulceration of new growths (septic) (Redard). Recently many cases of intra-abdominal and intra-pelvic disease have been published, in which apparently secondary glycosuria was present ; but it lasted months, and other diabetic symptoms were present, *e.g.*, thirst, polyuria, etc. After operation the sugar and other symptoms permanently vanished. The cases in which this form have been seen are appendicitis, pyosalpinx, strangulated hernia, and ovarian tumours. It would seem therefore that operation need not be refused solely because the symptoms of diabetes are present in these cases.

As regards the causation of surgical lesions, the only two lesions that diabetes may cause are balano-posthitis and possibly cataract. In carbuncle and so-called diabetic gangrene the influence of diabetes is indirect, as such patients bear badly any kind of injury.

Class 3, where the two lesions are independent of one another, is the most important from a surgical point of view. The existence of diabetes may be unknown, or the disease may be intermittent. The patients may appear healthy, but they are often stout, and otherwise unfavourable subjects for operation. A long list of cases where operations on the mouth, face, abdomen, and female and male generative organs have been performed is given. In cases of fractures it was formerly stated that non-union or delayed union was common in diabetes ; there is, however, considerable doubt whether this is true.

In Class 3, 92 operations have been performed on 83 patients, of whom 23 died, giving a percentage of recoveries of 72·23 and a percentage of 75 of successful operations. It must be remembered that, though this percentage seems a high one, in three of the cases (two strangulated herniæ, in one of which coma was already appearing, and in another gangrene of the gut was present, and an inguinal colotomy for complete obstruction) death would have occurred in any case. Operations of expediency were singularly successful. In diabetic subjects the most trivial incident or accident may be followed by coma ; it is not surprising that this may therefore follow an operation, and the percentage of sugar is not a criterion as to the likelihood of coma occurring, as it has occurred in cases where sugar had not been present in the urine for some time.

Class 4 includes all those cases in which a septic element is present at the time of observation. There is a vast amount of literature on this subject. Gussenbauer has a very good paper ; he advocates diet and general treatment in the first place ; if the pulse is distinctly present in the anterior and posterior tibials and in the dorsalis pedis arteries, local removal of the diseased parts will suffice ; if the pulse is only well felt in the popliteal, amputation may be performed below the knee provided that the gangrene has not spread beyond the dorsum of the foot, and the leg is free from phlebitis and lymphangitis ; if these are present, or the popliteal pulse is not well felt, amputation should be done at the middle of the thigh. It must not be forgotten that arterio-sclerosis and nerve change may play in many cases a large part in the causation of gangrene. If in doubt, amputate above the knee rather than below.

Several foreign surgeons think there is a special form of otitis media in diabetics, in which the mastoid symptoms predominate ; pain is a prominent symptom and occurs early ; the discharge

is often bloody, and there is a great tendency to mastoiditis and necrosis; in many instances extensive cellulitis of the neck has occurred; in other cases the disease runs quite a normal course. If an operation be required it should be performed in spite of diabetes. Extensive suppuration is not necessarily fatal in diabetes.

Indications against Operation.—(1) No operation, save one of extreme urgency, is to be performed if there is over 1 gramme of ammonia excreted in the twenty-four hours, until this has been reduced to a normal amount; (2) Postpone operation if there be aceto-acetic acid in the urine, though ammonia be not markedly increased; (3) Much albumin in urine is a bar to operation; (4) If serious disease of other organs be present, operation should be avoided; (5) Rapid wasting in a stout diabetic not obviously due to the surgical lesion, should be a reason for postponing an operation until the general condition be improved.

An Operation should be performed: (1) For malignant disease if otherwise suitable; (2) In large abdominal tumours, especially in females; (3) In diabetics in good health without extensive arterial or nerve degeneration, cosmetic operations may be performed, especially in females; (4) Emergency operations to be undertaken even in the most unfavourable circumstances; but give a guarded prognosis.

Examine the urine carefully beforehand, and always estimate the total amount of ammonia present; ascertain the amount of sugar, the presence or absence of acetone or acid bodies; the **Ferric Chloride** and **Legal's Test** are to be employed in every instance. If the operation can be delayed without detriment to the patient, a careful diet for some time previous to operation should be adopted. If ammonia is present in excess, **Sodium Bicarbonate** must be given daily until the percentage becomes normal; if the patient vomits it, give it per rectum. By this preliminary treatment the risk of sepsis and coma is lessened. Any operations that can be performed under a local anæsthetic should be so performed.

An extensive bibliography is appended. The relation of trauma and diabetes is a much closer one than was at one time imagined; Spitzer,[2] Letten,[3] and Hirschfield[4] give instances where trauma in a diabetic was soon followed by coma and death. Letienne[5] divides the traumatic cases of diabetes into the three following groups: (1) Transitory glycosuria due to

organic lesions, generally of the cranium or pancreas ; (2) Transitory glycosuria, usually quite brief, due to shock and general nervous derangement ; (3) True diabetes in all its phases.

It is well known that dogs and rabbits offer a remarkable immunity to infection by staphylococci as compared with man, yet when the pancreas was removed from these animals and experimental diabetes thus set up, wounds then seldom healed properly.

REFERENCES.—[1]*Lancet*, vol. i, p. 1308, 1902 ; [2]*Deut. Med. Woch.* No. 47, p. 756 ; [3]*Soc. Méd. Intern. de Berlin*, April 29, 1901 ; [4]*Ibid.* May 6, 1901 ; see *Pract.* July, 1902 ; [5]*Arch. Gen. de Méd.* Jan. 1902.

DIAPHRAGM (Wounds of). *Priestley Leech, M.D., F.R.C.S.*

These wounds are unusual in England, but are somewhat common in Italy. Schlatter, of Zurich,[1] says 89 cases have been reported, and in not a few successful operation has been undertaken. The prognosis of unoperated injury to the diaphragm is bad ; out of 33 cases which Frey collected, 29 died, mostly from incarceration of prolapsed intestine, and Schmidt found 48 cases which had been operated on, with only a 12 per cent mortality. These figures emphasize the advice given by Potemski to explore the diaphragm in all suspicious cases, even if the wound has to be enlarged, care being taken that the fingers be well disinfected before exploration. Schlatter followed this advice in two cases where two young men had been stabbed in the right side. In one case the wound was in the right mid-axillary line between the ninth and tenth ribs ; the patient had bled very freely and was very anæmic ; the right thorax moved but little, the right side of the abdomen was rigid, and there was some ill-defined dulness. Under ether 10 cms. (4 inches) of the ninth rib were resected and the pleural cavity freely opened. The lung had collapsed and was not seen ; there was a wound 3 cms. ($1\frac{1}{4}$ inches nearly) in the diaphragm, and after enlarging this to 8 cms. (3 inches) a large amount of blood escaped from the diaphragm. It was found that there were two wounds in the liver and one in the kidney. On suturing these the hæmorrhage ceased ; the peritoneal cavity was cleansed by sponges, and then the diaphragm was sutured, as well as the costal pleura and parietes. The patient recovered without a bad symptom. In the second case the wound was in the right mamillary line between the seventh and eighth ribs. Six cms. of the eighth rib were removed, exposing the diaphragm. The lung was collapsed, and the diaphragm, which lay against

the costal pleura, had a wound in it of 3 cms. long. The peritoneal cavity was not opened, but the patient had bled profusely from a small artery in the diaphragm, which was easily secured.

The diagnosis of a wound in the diaphragm is of great importance, but it is not easy unless the wound can be seen or felt, and favourable results depend on whether operation is done or not. If prolapse of intestine occur there is no difficulty, but in other cases the diagnosis must be made from the situation and direction of the wound, and the presence or absence of symptoms of an abdominal lesion. In the first case Schlatter laid much stress on the vomiting and on the intense anæmia, in spite of the fact that there were only slight signs of intrathoracic hæmorrhage. The diaphragm can be exposed by removing a rib, as was done in both these cases, or a flap involving two or three ribs and turning it up.

REFERENCE.—[1] *Münch. Med. Woch.* Aug. 20, 1901.

DIARRHŒA (Infantile). *R. Hutchison, M.D.*

According to Blackader[1] it cannot be too strongly affirmed that the great exciting cause of all the diarrhœas of infancy is the presence of some irritant in the intestinal canal, almost invariably of bacterial origin. It is also to be remembered that at the commencement of the disorder and for a variable time afterward, the *fons et origo mali* is limited to the contents of the gastro-intestinal tract. The chief therapeutic indication must therefore be to cleanse the alimentary tract as quickly as possible of the irritating and poisonous material, and to prevent the further growth of germs. The former of these objects is best achieved by the administration of a purgative, of which none acts more promptly and efficiently than a full dose of **Castor Oil.** If there is a tendency to vomiting, **Calomel** may be preferable, the dose for an infant being $\frac{1}{10}$ of a grain every half-hour for six or eight doses. Robey[2] is also a strong advocate of calomel.

The second indication is fulfilled by *starvation* for twenty-four hours, and especially by completely withholding **Milk** in all forms. As Marfan[3] points out, however, one must be careful to supply plenty of fluid during this period in the shape of boiled water. After the lapse of twenty-four hours, a predigested or dextrinized gruel may be given, at first in small quantity, the intervals between the feedings being not less than two hours. As the case improves, a weak meat broth may be added, and the administration of milk gradually resumed. Should the symptoms

not have abated, however, the water diet must be continued for longer than twenty-four hours. Drugs are of secondary importance, but **Bismuth** (carbonate or subnitrate) in doses of at least 10 grains every two or three hours is often of service, and if the stools are very frequent or watery, a little camphorated **Tincture of Opium** may be added. If the systemic disturbance is profound, and the temperature rises above 102° F., **Cold Sponging,** or **Tepid Baths** at a temperature of 90--95° F. given twice or thrice a day and of a duration of five or ten minutes have a calmative effect, and favour diuresis and the action of the skin.

Blackader speaks favourably of **Irrigation of the Colon** with tepid saline solution at the outset of the attack in severe cases, but does not think it necessary that this procedure should be renewed. To ensure success the child's hips should be well raised and the injection given slowly, the reservoir being held at a height of less than two feet. In protracted cases, high irrigations with 1 per cent **Tannic Acid Solution** twice a day are often useful. Marfan has had excellent results in acute cases, with much collapse and cachexia, from the **Injection of Normal Salt Solution.** He also prescribes **Calomel** in fractional doses, and **Bismuth Salicylate.** (See "Infant Feeding.")

REFERENCES.—[1]*Montreal Med. Jour.* July, 1901 ; [2]*Jour. of Med. and Science,* Aug. 1901 ; [3]*Med. Press and Circ.* June 25, 1902.

DIETETICS.

R. Hutchison, M.D.

Alcohol.—Atwater and Benedict have published an important monograph[1] on the nutritive value of alcohol. The subjects of experiment were three healthy young men, who were ordinarily engaged in rather light work. One had been accustomed to drink small quantities of spirits ; the two others were abstainers. The results of experiments with ordinary diet were compared with those of experiments in which part of the fats and carbohydrates of ordinary food were replaced by an isodynamic amount, about 72 grammes ($2\frac{1}{2}$ ounces) of absolute alcohol, generally in the form of commercial alcohol, though in one experiment brandy, and in another whisky, was used. The amount of alcohol was about as much as would be supplied in a bottle of claret, or 6 ounces of whisky, or 5 ounces of brandy.

The subjects of the experiment had an ordinary mixed diet, and were confined in the chamber of a respiration calorimeter for periods varying from four to nine days. Each metabolism

experiment was preceded by a period in which the subject had essentially the same diet, and nearly the same amount of muscular exercise, outside the chamber. On the preliminary experiments the amounts, composition, and heats of combustion of the fæces and urine were determined; in the metabolism experiments the output of heat, CO_2, and heat-equivalent of the work done were also estimated. The authors direct special attention to the fact that in interpreting the results in their bearing upon the physiological action of alcohol, it should be particularly noted that the whole amount of alcohol ingested per day was small, and taken in divided doses, so that a minimum influence was exerted upon the nervous system. With such small doses, the equivalent of a glass of wine each, practically no sensible effects were appreciated by the subjects. There was in some cases an apparent though slight quickening of the pulse-rate, but practically no lowering of the body temperature was observed. While the quantities of alcohol were much smaller than those given by previous experimenters, they were sufficient to make up about one-fifth of the total energy of the diet in "rest," and one-seventh of the total energy in "work" experiments. It is to be specially noted that the experiments were not made to test the effects of alcohol upon muscular or nervous activity or power, nor do they lead to any conclusions regarding the effects of alcohol when taken habitually or in large quantities.

The following are the chief results observed :—

(1,) On an average only 1·9 per cent of the whole alcohol ingested was eliminated by the lungs, skin, and kidneys.

(2,) One gramme of alcohol was found to be isodynamic with 1·73 grammes of carbohydrate or 0·78 grammes of fat in ordinary food materials.

(3,) Alcohol had no appreciable influence on the absorption or assimilation of ordinary food constituents.

(4,) The potential energy of the alcohol was transformed into kinetic energy in the body, as completely as that of the ordinary nutrients.

(5,) With the exception of the energy of the external muscular work in the work experiments, all of the energy of the food, including that of the alcohol, left the body as heat, and must therefore have been transformed into heat within the body.

(6,) The radiation of heat from the body was only *very* slightly greater with than without alcohol.

(7,) The efficiency of alcohol in protecting body fat from combustion was very evident, but its protection of proteid was much less marked. On the whole the experiments tended to show that alcohol tends to protect proteid, though this action may sometimes fail in persons unaccustomed to its use.

(8,) The experiments did not prove that a part of the potential energy of the alcohol was transformed into the kinetic energy of work, though they made it highly probable that this takes place.

The authors admit that there is a very essential difference between the transformation of the potential energy of alcohol into the kinetic energy of heat, or of either internal or external muscular work, and the usefulness or harmfulness of alcohol as a part of ordinary diet. Regarding this latter question, the experiments bring no more evidence than they do regarding the influence of alcohol upon the nervous system, or its general effect upon health and welfare.

Professor Lee and Dr. W. Salant[2] have investigated the action of alcohol on *muscular activity* in frogs. Alcohol of varying strength was injected in quantities proportional to the weight of the animal. In each case one gastrocnemius was protected from the action of the alcohol, and the work which this was able to perform was contrasted with that of the opposite leg. In small quantities the alcohol had no effect; in larger doses the amount of work was increased, sometimes more than 100 per cent, whilst in still larger doses the opposite effect was produced. It was doubtful whether the effects were due to direct action on the muscle protoplasm, or upon the intra-muscular nerve termination.

Discussions on the action of alcohol were also held at the New York Academy of Medicine (March 7, 1901),[3] and at the Edinburgh Medico-Chirurgical Society (July 3, 1901).[4]

At the former Dr. James Ewing said that he had been interested in the study of the effects of alcohol on the ganglion cells. The cases were conveniently divided into two main classes, *viz.*: (1) Those which were acute, and (2) Those which were very chronic. In the brains of those dying from delirium tremens the appearance was most characteristic, particularly the great venous engorgement on gross examination. On microscopical study with the aid of Nissl's or Golgi's stain, one found changes which were apparently identical with those observed in sunstroke, tetanus, and hydrophobia. There was a complete dis-

appearance of the reserve nutriment or chromophilic bodies. The distribution of the lesions showed that there was a general circulating poison. He had found the lesions in the motor cortex as well as in the less complex cells of the frontal lobes. As a rule, the spinal cord cells did not show such marked lesions as did the ganglion cells of the brain cortex. Several systematic attempts had been made to reproduce in the lower animals the same condition as delirium tremens of human beings, but so far these had all been failures, because if sufficient alcohol were given it acted as an irritant, causing the death of the animal. These experiments perhaps justified the deduction that alcohol acted chiefly on the more highly organized cells of the nervous system. Such lesions as were produced resembled those of chronic alcoholism in man. The chronic abuse of alcohol was followed by distinct lesions in the human subject, though not so marked as in the acute cases. In the brain of the average chronic alcoholic, one found an evidence of wear and tear in the deposit of pigment, usually in large masses in the ganglion cells.

It was admitted by most speakers that the treatment of chronic alcoholism could only be conducted in institutions where it was impossible for the patient to obtain alcohol. This could best be done by legal commitment, and legislation in this direction was much needed. Dr. Allen Starr spoke highly of the value of religious and moral suasion, and stated that the only reformed drunkards of whom he had knowledge had been saved not through medical, but by religious influence. As regards the methods of the **Gold Cures,** Dr. Peabody said that he had been told by a physician that in the so-called "gold cures" it was the practice to give daily hypodermic injections of **Strychnine and Atropine,** the solution being of a golden colour, but not containing any gold. After the treatment had been carried out along this line for a certain length of time, the patient was told that he could, if he so desired, go to the sideboard and help himself to liquor in the presence of the physician. Some would accept this invitation. They would then receive what was apparently the customary hypodermic injection, but it was not really so, the physician having smuggled in a dose of **Apomorphine.** Of course, when shortly afterward the patient vomited the liquor, he would be profoundly impressed, and disposed to believe the statement made to him that after having gone through the "cure" it would be impossible for him to "digest and retain" liquor, even if he saw fit to take it.

At the Edinburgh discussion, Professor T. R. Fraser said that there were those, on the one hand, who thought that alcohol was of the highest value, and on the other who thought that it had no value whatever. It must be admitted that it was a toxic agent, yet it had actions which might be of service in many directions, for example, to patients suffering from certain diseases, and even in certain circumstances to society at large. Enough care had not always been taken to discriminate between the effects produced by small doses as contrasted with the effects of large doses. The effects were entirely different. In small doses alcohol stimulated the heart, while in large doses it paralysed it. It was a substance which either improved or destroyed digestive processes, and because of the ease with which it was burned up in the body might give energy, and so be of use in certain cases. He discussed in detail (1) *Its effects on the circulation:* In small doses, without doubt, alcohol acted directly on the heart, so as to increase the force of its contractions and to quicken its action. This rapid stimulating action of alcohol was of value to the circulation as contrasted with the majority of other drugs. Alcohol was readily absorbed, and so its effects were speedily produced. There was no subsequent depression following on this cardiac stimulation. The heart merely returned to its normal state, and was not enfeebled. It had a direct action on the blood vessels, as a result of which they dilated. As a result of the increase of cardiac action, together with the muscular dilatation of the vessels, there was a widely distributed acceleration of the blood supply, and a consequent stimulation of distant tissues and cells of the body when these might be perishing for want of nourishment. (2) *Its effects on digestion:* It had been absolutely proved that alcohol stimulated salivary secretion, without deteriorating its power. It also increased the peptonising power of the gastric secretion, as well as stimulating the peristalsis. Increase in the absorption of nitrogenous substances from the stomach wall must result. Alcohol was a very satisfactory agent in stimulating primary digestion. It was a tonic to digestion, but only when the dose was moderate. (3) *Its effects on nutrition:* Alcohol was very easily oxidized. After taking alcohol the output of carbonic acid and the intake of oxygen were increased. Only an insignificant amount of alcohol was to be discovered in any of the excretions. Such facts showed that alcohol was absolutely burned up in the body, and it must therefore generate energy

and force. It was much more readily consumed than either carbohydrates or fats. It was not to be placed high as a food substance. Its only value lay in allowing us to tide over an emergency, as where a patient was unable to retain any food in the stomach, and where death threatened. By giving alcohol in suitable cases one could ward off this, and so surmount crises. One could cure such cases by giving alcohol, as it proved not only a food, but also acted by stimulating the circulation. (4) *Its action on the temperature:* Even in normal conditions as well as in pyrexia, alcohol reduced the temperature. This was due to radiation of heat from the body, and not from any inhibition of heat production. Alcohol therefore proved very satisfactory in reducing pyrexic conditions. (5) *Its action on the nervous system:* As physicians they had not much to do with this aspect of the question. The chronic action of alcohol on the nervous system was something totally different, however. (6) As regards *the action of alcohol in infection*, Professor Fraser said that the incidence of plague amongst an absolutely teetotal population gave a case mortality of 95 per cent in Calcutta, whilst amongst the Europeans, who drank alcohol, it was only 20 per cent. The same results were seen in the recent outbreak of the disease in Glasgow.

The subject was discussed from the clinical point of view by Drs. Affleck and James Ritchie, both of whom were of opinion that the *clinical value* of alcohol was over-rated. The former thought that it acted best as an emergency remedy, although even here it is often disappointing. In the fevers, and especially in pneumonia, where it was often recommended to be given in large doses, it frequently failed to make any impression on a grave case; and when it acted beneficially in these diseases, probably more benefit was obtained from small than from large doses. The value of its habitual use as an aid to digestion was very doubtful; and such apparent benefit as was observed might be dearly purchased at the expense of tissue degeneration in the later periods of life. There was no remedy so frequently suggested by patients or their friends, and young practitioners should be careful of prescribing it lightly. Dr. James Ritchie thought that in gout or rheumatism alcohol should not be used; that it was of very limited value in cardiac cases, and in acute dilatation or the dilatation of failing compensation was actually harmful; and that in failing heart with hypertonus, not due to alcohol, though it gave temporary relief, such relief was better obtained by other remedies.

Vegetable diet: therapeutic uses of.—L. Kuttner[5] discusses the respective merits of vegetarianism and mixed diets. He concludes :—

(1,) That a mixed meat diet is natural and most suitable to man.

(2,) It is proved that, given judicious choice and preparation, strict vegetarianism is not only sufficient to maintain condition, but even to increase weight. The subjects do not as a rule, however, compare favourably with those who eat mixed or animal diets, in their power to put on weight and resist disease.

(3,) That a modified vegetarian diet (that is, one supplemented by such animal products as milk, butter, cheese, honey, and eggs) is suitable (*a*) for corpulent constipated patients deficient in intestinal activity, (though not to be recommended in the case of *young* growing people with a tendency to *embonpoint*) (*b*) In certain cases of alcoholism ; (*c*) In dyspepsia and intestinal affections of nervous origin ; (*d*) Particularly in idiopathic neuralgias, as well as those having a gouty basis ; (*e*) In the treatment of headaches and other disorders dependent on constipation in neurasthenic, hysterical, and epileptic patients ; (*f*) In conditions of abnormal irritability of the heart (arising from emotion, excessive muscular action, sexual excitement, etc.), and in exophthalmic goitre ; but contra-indicated in all conditions of heart weakness due to arterio-sclerosis, myocarditis, etc. ; (*g*) In many cases of insomnia nervosa, urticaria, psoriasis, and occasionally scrofula, a marked addition of vegetables to diet should be considered.

(4,) That to achieve a favourable result in absorption a reasonable combination of animal and vegetable food stuffs is essential. For all healthy and for most sick persons a mixed diet, different in degree and constitution according to the patient, is to be recommended.

(5,) As a guide to the arrangement of a suitable modified vegetarian diet the following may be of value : (*a*) In weak broken-down patients with chronic catarrhs or an inclination to ataxy of the stomach, a vegetarian diet must be gradually approached, and must only be maintained temporarily, say for six weeks ; (*b*) In gastric neurasthenia, and especially in habitual constipation in patients of good physique, a vegetarian diet may be instituted less gradually, and may be maintained for a longer period.

The following he gives as a suitable arrangement of a lacto-vegetarian diet :—*Breakfast:* Porridge, cup of sweet milk or

cocoa, bread and butter (with any tendency to constipation a fruit jelly, honey, or fresh fruit may be added). *Forenoon:* A brew of rice, lentils, etc., milk or "kefir," with bread and butter. *Lunch:* Soup made of fruit, milk, vegetables, or greens; a macedoine of fruit; a bowl of butter-milk; with plenty of green vegetables, which, according to the requirements of the case, may be prepared with more or less butter, and given as a purée, mashed up, or in their ordinary form; egg cakes, pancakes, etc., with, if hungry, raw or cooked fruit. *Afternoon:* A goodly portion of cooked or raw fruit, with white bread or rusks (with any tendency to formation of acids in the stomach, honey or fruit jelly may be allowed); a small quantity of milk or a mixture of milk and cream. *Evening:* Several times a week, a brew of barley, rice, tapioca, etc., with milk and butter, baked potatoes, butter, and cheese; on other days, eggs, egg foods, milk, or "kefir." Special indications for this form of diet are a tendency to corpulence, appearance of severe gastric disorders, etc. A specific written diet should invariably be given in each case.

Albumin preparations.—J. Hoppe[6] has tested the value of albumin preparations as foods. He states that in experimenting with **Roborat** on himself and an attendant, they both found that a diet consisting solely of this preparation, with any other food (including alcohol) whatsoever, was not pleasant. The taste of roborat was like that of sand; 100 grams contain 13·13 grms. of nitrogen = 83·22 per cent of albumin. Each of them lived for one day on milk, for three days on roborat, and one day on ordinary fare. Roborat was taken in quantities varying between 100 and 120 grms. daily. They did not feel very well during the trial, but were able to work. The results of nitrogen intake and output are tabulated, and show that the two persons used up 95 per cent and 92 per cent respectively of the preparation. Like experiments with **Tropon** and **Plasmon** were gone through, which showed that the former was used up to 89 per cent and 94 per cent, and the latter 91 per cent and 95 per cent. For *rectal feeding* tropon was found to be useless. Roborat and plasmon, on the other hand, are absorbable in the form of homogeneous mixtures from the intestine, and experimentally they determined that 25 per cent and 50 per cent of the albumin of plasmon can be utilized in this way. In actual sick-room practice one must not expect such quantities to be absorbed. Plasmon, in homogeneous mixture, can be used in the form of *subcutaneous*

injections. Hoppe carried out experiments with dogs, and showed that the injection produced no general or local disturbances. The fact that none of the albumin preparations are sterile, prevented him from experimenting on himself. It is claimed for roborat that it causes a smaller manufacture of *urea* in the organism, and Hoppe and a colleague experimented on themselves with regard to this point. The preparation period consisted of a three days' ordinary diet and one day milk diet, and the experiment period of roborat (100 to 110 grms.), and additional vegetables and other foods, to produce an equivalent of the ordinary diet in the various constituents. It was found that the production of urea was less during the roborat diet period. The combined roborat diet was well tolerated. Hoppe intends to experiment with roborat diet for epilepsy, some authorities being of opinion that a connection exists between the amount of urea formed and this disease.

REFERENCES.—[1]*Memoirs Nat. Acad. of Sci.* vol. viii, 1902 ; [2]*Lancet*, Nov. 9, 1901 ; [3]*Med. Rec.* March 16, 1901 ; [4]*Brit. Med. Jour.* July 13, 1901 ; [5]*Berlin Klin.* Jan. 1902 ; [6]*Münch. Med. Woch.* March 25, 1902.

DIPHTHERIA. *E. W. Goodall, M.D.*

ETIOLOGY.—Hewlett and Montague Murray examined bacteriologically the throats of all the children admitted into the Victoria Hospital for Children during the year 1900. They found that in 92 of 385 children the pseudo-diphtheria bacillus was present ; and in 58 the Klebs-Löffler. Taking into consideration the latter organism only (since it is very doubtful if the former is pathogenic), it would seem that at least one out of every seven children admitted to hospital is a possible source of diphtheria infection. These observers further found that the Klebs-Löffler bacillus occurred more often in children under than over two years of age, in the proportion of one in five in the former group, and one in eight in the latter. In only seven of the cases was there clinical evidence of diphtheria, and in three of these seven the Klebs-Löffler bacillus was not obtained on the first examination. In three instances the bacilli were tested as to their virulence, which in each case was found to be but feeble.

TREATMENT.—Isolated cases are published from time to time in which the cure of diphtheria is attributed to antitoxic serum given by the **Mouth** or **Rectum.** Single cases of this kind are of little if any value, if it be desired to prove that this method of administering antitoxin is efficacious. On the other hand

Hewlett brought before the Pathological Society of London, at a meeting held on February 4, 1902, some experiments which show that this method is valueless. The administration by mouth or rectum of the antitoxins of diphtheria and tetanus to rabbits and guinea-pigs did not prevent these animals from succumbing to lethal doses of the toxins of those diseases administered subcutaneously within a short time ; whereas it is well known that the subcutaneous injection of antitoxin acts as a preventive or antidote.

The **Feeding** of diphtheria patients (especially of children suffering from severe attacks), is the subject of a careful paper by Kirton.[1] He discusses feeding (1) By the mouth ; (2) By the nasal tube ; (3) By the rectum ; (4) By subcutaneous injections.

(1,) *Mouth Feeding*.—In the early stages **Milk** is the chief article of diet ; it should be diluted with barley water, or given in such forms as Benger's or Mellin's food, four or five ounces of milk every three or four hours. At first the child suffering from diphtheria takes nourishment pretty readily, but when the membrane clears off, the throat becomes painful, and hence he will not swallow. In cases which progress favourably milk diet may soon give way to ordinary food. In *regurgitation*, the child must be fed slowly, and should on no account be allowed to feed himself. The food should be thickened or made into jelly. Eggs may be given, lightly boiled and made into a paste with bread crumbs. Feeding by the mouth has in some cases to be supplemented by nasal or rectal feeding. Patients who *cough on taking liquid* nourishment must be treated in the same way as those who have regurgitation. In case of *vomiting*, small quantities of peptonised milk, one ounce or less, should be given every hour. If vomiting persists, water and raw meat juice, or white of egg and water should be tried, as they may be retained when peptonised milk is not. If they fail, recourse must be had first to nasal and afterwards, if necessary, to rectal feeding.

In *severe cases* milk should be given in small quantities at frequent intervals, and may be supplemented by beef tea, and eggs beaten up with a little brandy and milk. A good nutrient mixture consists of one egg, a little powdered sugar, half an ounce of brandy, and milk to two ounces, administered in small quantities over twelve to twenty-four hours. As stimulants, brandy and champagne are the best, given as symptoms arise.

(2,) *Nasal Feeding.*—This is rendered advisable by the following conditions : (*a*) Inability to swallow owing to regurgitation, paralysis of the muscles of deglutition, etc. ; (*b*) Coughing on feeding, due to entrance of food into the larynx, especially in tracheotomy cases ; (*c*) Cases which vomit when fed by the mouth, but do not when fed by the nose ; (*d*) Cases exhausted by mouth feeding, but not when nasal fed (amongst these must be numbered cases in which mouth feeding takes a very long time) ; and (*e*) Moral effect ; some children refuse food though well able to swallow, and in such cases one nasal feed is often sufficient.

As a rule, nasal feeding is done with a soft rubber tube, but occasionally a stiff one is necessary. Four ounces or less of nourishment should be given every four hours ; peptonised milk (the chief ingredient), meat juice, eggs, cream, with such stimulant or medicine as may be ordered. All food should be strained, measured, and given warm. If vomiting occurs, it is well to try varying the amount or frequency of the food, before resorting to rectal feeding. Patients soon become tolerant of nasal feeding.

(3,) *Rectal Feeding.*—The following are the chief conditions where this is required : (*a*) Vomiting ; (*b*) Great difficulty in passing the nasal tube from various causes ; (*c*) When nasal feeding acts harmfully on the patient, owing to fright, struggling, or other causes ; and (*d*) Epistaxis caused by passage of the nasal tube.

" Rectal feeding should be performed by means of a funnel and soft rubber tube, passed as high up the rectum as possible, and the food allowed to flow in by force of gravity. A ball syringe should not be used, for it is impossible to gauge accurately the amount of pressure used ; experience also shows that nutrients given this way are not so well retained." The feeds must be given warm, and should be strained and measured. The food should be much the same as that recommended in nasal feeding, two to four ounces in amount. Brandy is apt to set up diarrhœa. It may then be given apart from the nutrient feeds, diluted with water. " The milk feeds should be preceded by water feeds of three or four ounces of warm water, given in the same way as the milk feeds about an hour before these feeds are given. Sometimes in addition to the milk and water feeds, small nutrient suppositories may be given, provided they are retained and absorbed. The bowel should be washed out every

twenty-four hours, and it is possible from this to get some idea as to whether the food given has been absorbed." Rectal feeding may be continued for three or four weeks. If diarrhœa arises, or if the feeds are badly retained, the quantity of food should be diminished, and it should be given less frequently. If these means fail, a **Starch and Opium Enema** may be tried, containing a few drops of tincture of opium.

(4,) *Subcutaneous Injections.*—When the amount of nourishment that is being retained by the former methods is not sufficient to maintain life, the subcutaneous injection of 20 to 40 c.cms. daily of sterilised **Horse Serum** is to be recommended.

Intubation.—The present writer has elsewhere[2] given an analysis of 101 cases of intubation or attempted intubation of the larynx, chiefly in diphtheria, occurring in the Eastern Fever Hospital, Homerton, during the period November, 1898, to June, 1901. The cases are divided into four groups.

(1,) Those cases in which intubation alone was performed. There were 43 of these, with 9 deaths, all cases of diphtheria, except 3 of simple laryngitis, 1 fatal. Even in the fatal cases complete relief was afforded by the intubation; indeed in most of them the tube was removed some considerable time before death took place, without any return of dyspnœa. In 29 cases, 6 being fatal, only a single insertion was necessary. In two of the cases which recovered, membrane was coughed up from the trachea while the tube was being worn, and there was every reason for thinking that the membrane came through the tube.

(2,) The cases in which intubation was followed by tracheotomy. There were 44 of these, with 15 deaths; 37 were cases of diphtheria, 12 fatal; 4 were simple laryngitis, 2 fatal; and 3 were measles with laryngitis, 1 fatal. In half the cases (22, with 6 deaths), it was necessary to perform tracheotomy after a single intubation. It was found that tracheotomy had to be resorted to for seven distinct reasons: (*a*) Because no or very partial relief was afforded by intubation; 20 cases with 9 deaths. (*b*) Because several intubations had proved unsuccessful in permanently relieving the patient; 8 cases with 4 deaths. In these cases, as long as the tube was in the larynx, the patient was comfortable. (*c*) Because, some time after the removal of the intubation tube, dyspnœa recurred, and the patient's condition quickly became too serious to allow of re-intubation: 8 cases, with 1 death. (*d*) Because the intubation tube became suddenly blocked; 3 cases without a death. (*e*) Because the

operator attempted another intubation, but failed to insert the tube; 3 cases, with 1 death. (*f*) Because the medical officer called to see the patient had had no experience of intubation, and therefore did not attempt it; 1 case, which recovered. (*g*) Because it was found that the larynx was ulcerated; 1 case, which recovered. In three instances of class (*b*) it was found *post mortem* that the inability to do without the intubation tube was due to ulceration of the larynx; in the only case in class (*g*) ulceration was discovered while the patient was still wearing the intubation tube.

(3,) The cases in which the attempt at intubation was not successful. There were 7 of these; 4 cases of diphtheria, with 2 deaths; 2 of simple laryngitis; and 1 case in which there was a difficulty in getting the patient to do without a tracheotomy tube.

The principal causes of failure to intubate were: (*a*) Want of experience in the operation; 11 of the cases occurred soon after the introduction of intubation at the Eastern Hospital. (*b*) Spasm of the glottis; in one case an unsuccessful was converted into a successful attempt by giving the patient a little chloroform. (*c*) Œdema of the glottis, or sometimes of the epiglottis only. (*d*) The preliminary gagging, which very occasionally aggravates the respiratory distress. There was one fatal instance of this, which has been published by Basan. Apparently it is not so much the gag as the struggling to resist its introduction that leads to distress. (*e*) Blocking of the larynx by mucus, etc., during attempts to intubate.

(4,) The cases in which intubation followed tracheotomy. There were 7 of these; in 6 of them there was a difficulty in getting the patient to do without the tracheotomy tube, and intubation was practised as a means towards its final removal, and as such proved of value.

From a study of this series of cases the writer concludes: (*a*) That cases of diphtherial laryngitis are more amenable to treatment by intubation than cases of laryngitis which are not diphtherial, such as simple laryngitis, the laryngitis of measles, etc. In the latter class of cases the tube seems to irritate the larynx, and it is very frequently coughed out. (*b*) That intubation is inadmissible when the patient is *in extremis* from suffocation; and is inexpedient in toxic cases in which there is little or no hope of the patient's recovery. (*c*) That it is not advisable to remove the tube till the lapse of

from thirty-six to sixty hours. (*d*) That if three insertions, each of several hours duration, fail to cure the laryngeal obstruction, tracheotomy should be performed ; and that frequent expulsion of the tube a few minutes after its introduction is also an indication for tracheotomy. (*e*) That little, if any, importance is to be attached to the blackening of the tube that is not infrequently found.

Lastly, certain objections to intubation as an alternative to tracheotomy are considered :—

(1,) The danger of sudden blocking of the tube while in the larynx by membrane or thick mucus. "In 87 cases of intubation for primary laryngeal obstruction, sudden blocking of the tube occurred in 11 instances, 12·6 per cent. In 3 cases tracheotomy was required at once, and in 4 it had to be performed at a later period. These 11 all occurred amongst the diphtheria cases, 77 in number, an incidence of 14·2 per cent. But amongst these cases there has not been one in which death was due, even remotely, to sudden blocking of the tube. In hospital practice there appears always to be time for a medical man to reach the patient early enough to remove the tube and, if needful, open the trachea successfully."

(2,) The risk of causing ulceration of the larynx. Ulceration occurred in 4 cases, and in 2 of them intubation was with little doubt wrongly persisted in. "Be very careful in the introduction of the tube. Do not intubate when the larynx is much swollen ; a fact which can often, if not always, be ascertained with the finger. If in any case intubation is found to be difficult, do not persist too much in your efforts, especially if your experience of the operation is limited. Lastly, do not intubate the same case more than three times. If these rules are adhered to, I believe that ulceration of the larynx will occur no more often after intubation than it does after tracheotomy."

(3,) The danger of increasing the dyspnœa by pushing false membrane before the tube. This does occur ; but tracheotomy can then be performed. Indeed, intubation should never be attempted without the tracheotomy instruments being ready to hand.

(4,) The tube may be coughed up and the dyspnœa return. This is true ; but there is always time to fetch a medical officer to perform re-intubation or tracheotomy as may be required.

(5,) That intubation is more difficult to perform than tracheotomy. This is not the writer's experience ; he has seen

as much bungling over first performances of tracheotomy as of intubation.

(6,) That the patient is prevented from taking sufficient nourishment. This is quite an erroneous idea ; for the patient can be fed by a nasal tube, or by the rectum.

" In considering the question of intubation *versus* tracheotomy, it is to be remembered that the former is not prejudicial to a subsequent performance of the latter, as is shown by the low mortality (34 per cent) of those cases which after all had to be submitted to tracheotomy."

REFERENCES.—[1]*Lancet*, June 15, 1901 ; [2]*Edin. Med. Jour.* March, 1902.

DISINFECTION (of Hands, Sutures, etc.,).

Priestley Leech, M.D., F.R.C.S.

The conclusions drawn by Paul, Farwey, Krönig, and others that no means or method exists by which the hands can be rendered moderately free from micro-organisms are regarded by R. Schaeffer[1] as too sweeping. There are two ways in which the hands may be disinfected, *viz :* (*a*) By mechanical means ; (*b*) By chemical means. Merely mechanical means are absolutely untrustworthy, but he has obtained the best results with the alcohol method, even better than with Mikulicz's soap spirit. He explains the action of alcohol by its hardening properties and its power of dissolving fats and epithelium ; its bactericidal properties are not marked, and he believes its action is mainly mechanical cleansing.

Beck[2] has found that silk sutures are not so harmless as they are generally regarded, and thinks that absorbable ligatures should be used as far as possible. If an unabsorbable ligature like silk is used the thread should be as small as possible, and the interrupted rather than continuous suture should be used. Absorbable ligatures cause much less trouble.

H. Greife[3] draws attention to the merits of **Reindeer Tendon** as sutures. Reindeer tendon is obtained from the neck of the animals, killed in late autumn after the onset of frost ; the raw tendons are dried at a low temperature, and later, after softening with water, the threads can be divided by teasing with forceps or with the fingers ; the threads are sorted according to their size, dried, and laid aside for sterilization. Histologically they consist of parallel fibres of connective tissue, with a small intermixture of elastic fibres. As compared with catgut, it is less

likely to be contaminated in the raw condition, and any micro-organisms found in it are likely to be only on the surface, whereas in catgut, being twisted, the organisms, if there are any, are as likely to be in the middle of the thread. The interior of the threads can be influenced by antiseptics, as after six hours' soaking in methylene blue solution reindeer tendon showed an equally stained blue surface, while after forty-eight hours catgut showed blue staining only in its outer third, the centre remaining white. For sterilizing he used the following method : (1) Two days in **Ether** to free the threads from fat ; (2) One month in **Oleum Juniperi** ; (3) Two days in **Ether** and two to seven days in **Alcohol** to remove the oil ; (4) Two days in a 1-2000 **Hydrarg. Perchloride** solution ; (5) Storing in alcohol. The threads are, with the addition of 30 per cent of water, rendered flexible. They can be obtained in Moscow, Berlin, and Paris at 3/- per 1000 threads.

That boiling cutting instruments in soda solution spoils the cutting edge is one of the chief objections to this method of sterilizing instruments. Polak, of Amsterdam,[4] says he uses the following method with success for cutting instruments : After every operation the instruments are placed in **Spiritus Saponis Kalinus** and kept there for at least fifteen minutes ; they are then taken out and carefully cleansed. Before operating they are again placed in the soap spirit for fifteen minutes, and then wiped with a sterile cloth. The soap may also be removed by placing them in a 50 per cent solution of alcohol, or one of sterile boracic acid. It is of great importance to place the instruments before and immediately after operation in a sterile solution of **Boracic Acid** (3 per cent). Geron's advice is also good, *viz.*, to wrap them in a cloth soaked in **Soap Spirit,** so that disinfection takes place whilst they are carried about. Mechanical rubbing with soap spirit for half a minute is a good procedure.

In order to make infection by the surgeon's hands less likely, Maylard,[5] who thinks that the micro-organisms in the skin are derived from the sebaceous and sudoriparous glands, excites these glands to act before commencing to operate. The hands are kept in water as hot as can be borne for from five to ten minutes ; the soddened epithelium having been removed by massage of the hands under water and by the use of ordinary soap, the hands are finally rinsed in warm carbolic lotion (1 to 40). Maylard thinks soaking is better than soaping. To sterilize the patient's skin he uses **Lanolin Oleate of Mercury**

Ointment to the skin over the seat of operation. It is possible to salivate a patient by the application of mercurial ointment to the abdomen. The mercury must be carried by the natural channels, the lymphatics especially, and it is suggested that in a part whose lymphatics contain such a potent bactericidal agent as mercury the micro-organisms will be destroyed by the mercury, and the development of any which may be introduced will be checked. Chemical examination failed to afford any positive information ; bacteriologically and clinically there was a material diminution in the number of micro-organisms.

M. Marian,[6] finding great difficulty in removing the odour from his hands after performing *post-mortem* examinations, **Varnished** his hands. He then used the same varnish after having had his hands in septic fluid, before operating, and found that bacteriologically it was quite safe. [Indiarubber gloves would be much safer where clean operations have to be performed after having operated on septic cases.]

Walker recommends operating without the use of any fluid (the dry method). All sponging is done with dry pledgets of gauze ; the wound is not douched or washed out with any fluids at all. Even in pus cases he believes that dry sponging is preferable.

Dr. Greene Cumston[7] recommends the use of **Calcium Hydrosulphide** as an efficient **depilatory** for the removal of hairs from various fields of operation where the razor cannot be used. The method of preparation is as follows : Three parts of water are added to two parts of slaked lime, and sulphuretted hydrogen is passed through the mass as long as it is absorbed. On standing it separates into two portions, the water of course being on the top ; it must be stirred up before being used. A thin layer is spread with a spatula or spoon handle on the parts from which the hair is to be removed ; if the hair is long, clip it previously with scissors ; the paste is then left on for five minutes, and then removed with a towel and tepid water, when the hair will be found to be removed. It is non-irritating and painless, and leaves no trace behind. It is better than the razor in scalp wounds, genito-urinary, rectal, and gynæcological surgery, as a perfectly smooth skin results. It keeps best in small containers (five months).

Lilienthal[8] uses sterilized **Zinc Oxide Rubber Plaster** for bringing together the skin. He claims by this method to avoid stitch abscesses ; it should not be used where much tension exists.

REFERENCES.—[1]*Berlin klin. Woch.* Nos. 9 and 10, 1902 ; [2]*Intern. Jour. Surg.* ; [3]*Münch. Med. Woch.* June 18, 1901 ; [4]*Deut. Med. Woch.* see *Med. Press*, 1901 ; [5]*Ann. Surg.* Jan. 1902 ; [6]*Gaz. des Hôp. de Toulouse*, March 23, 1901 ; [7]*Pract.* June, 1902 ; [8]*Ann. Surg.* May, 1902.

DRUG RASHES. *Norman Walker, M.D.*

Quinine rash.—Wood[1] reports a well-marked case of quinine rash in a woman. The quinine was administered in the form of a compound tincture of cinchona, and the first symptoms appeared, a short time after taking the first dose, symmetrically on both fore-arms. The eruption had a somewhat unique form. The lesions were regular in outline, almost perfectly circular, deep red in the centre, and gradually fading towards the periphery. The temperature was 99°. The eruption faded markedly in four days, and the lesions desquamated actively. The amount of quinine which the patient took was altogether 5½ grains, and on the nature of the eruption being explained to her, she recollected having suffered from a vesicular eruption five years previously, following the use of quinine for malaria. Wood gives an interesting table of 59 recorded cases, several of which appeared after one single dose of the drug. Of the 60 cases which he recorded, 18 were erythematous, 12 scarlatiniform, 9 urticarial, 5 purpuric, 2 bullous, and 2 rubeoloid ; the others were mixed.

Hair-dye.—Mewborn[2] reports a case of acute dermatitis from the use of hair-dye containing the hydrochlorate of paraphenylene diamine. It seems it is well known in Paris, and that this dermatitis is quite familiar to the physicians of the St. Louis Hospital. The dermatitis was of the erythematous type. The eyelids were puffy, and the conjunctivæ were congested. There were numerous vesicles, and some exudation. The name of the dye is not given, and as the tints may be varied from auburn to jet black, the colour of the lady's hair gives no indication. The cases are so numerous in Paris that Brocq suggests that a law should be enacted that the dye must be labelled " Dangerous to persons who have had eczema, or who have irritable skins." We fancy that, even in France, the passage of such a law is unlikely.

Arsenic.—Tunnicliffe[3] reports two cases of dermatitis of the legs, produced by arsenic in the dye of the stockings. In the case of a boy aged nine there were nodules like commencing boils, abruptly limited to the stocking area. The eruption

subsided, but the next time the boy put on the stockings another crop appeared. The second case was that of an unusual form of tenderness of the soles, following on the wearing for a few hours a pair of new black stockings. Tunnicliffe obtained large amounts of arsenic from the stockings, and it is somewhat disturbing to hear that stockings purchased in different parts of London, at various prices, *all* contained arsenic ! Tunnicliffe says that he has heard incidentally of other cases. We can recollect hearing as students a lecture by the late Sir Douglas McLagan on this very subject. Germany, Austria, and Sweden have laws regulating the use of arsenic, and Tunnicliffe suggests similar legislation for this country.

References.—[1]*Therap. Gaz.* Jan. 15, 1902 ; [2]*Jour. Amer. Med. Assoc.* May 18, 1901 ; *Lancet*, June 29, 1901 ; [3]*Lancet*, April 27, 1901.

DYSENTERY. *James Cantlie, M.B., F.R.C.S.*

Etiology.—According to Flexner, Vedder, and Duval,[1] the cause of dysentery, whether sporadic, institutional, or epidemic, is considered to be the bacillus dysenteriæ of Shiga. Three organisms held the field as etiological factors, namely, those described by Shiga in Japan, by Flexner and Strong in the Philippines, and by Kruse in Germany. It is now maintained that these organisms, as severally met with, are all identical with the bacillus as it was originally described by Shiga, and termed the bacillus dysenteriæ. At the present moment the opinion of investigators who have taken up this subject, is that dysentery of whatever nature and in every country is set up by the same bacillus. The grounds for this conclusion are based on experiments chiefly made by the American bacteriologists, and rest on the facts that : (1) The bacillus, wherever obtained, gave definite and similar culture characteristics ; (2) A positive agglutinative reaction, and (3) The morphology in all cultures was identical. Not only is the organism of Shiga stated to be present in all cases of dysentery, but it is pathogenic. Before, however, the etiological unity of all dysenteries is accepted there are still several points in the chain of evidence wanting. In the first place, although typical dysentery has been induced in man by the ingestion of the dysenteric bacillus, inoculations of animals have failed to give positive results, nor has the bacillus been found in all cases of dysentery examined.

Andrew Duncan[2] points out that Celli and Fiocca consider the bacillus coli dysenteriæ the exciting cause of dysentery,

basing their opinion on the fact that a toxin separated from the growth of the organism acts upon the intestines of animals. Besides these he quotes several other organisms, such as certain streptococci, the bacillus pyocyaneus, the paramæcium coli, etc., which have been considered etiological factors of the disease. Duncan objects to employing the terms amœbic dysentery and tropical dysentery as if they were synonymous, and advances the view that the amœba has nothing to do with dysentery in India as a causative agent. There is, moreover, no relation observed between the numbers of amœbæ and the severity of the illness, and the organism has been found not only in other diseases but also in the normal intestine.

W. J. Buchanan, Major I.M.S.,[3] considers that although dysentery may be a condition of multiple origin, there are two clear forms of the disease, namely (1) Amœbic; (2) Bacillary, due to the bacillus of Shiga. The bacillary form of dysentery is more common than the amœbic in Indian prisons. How these organisms get into the human body is still unknown. (1) The idea that dysentery is a *water-borne* disease will serve as an explanation of the epidemic prevalence of dysentery, but not of its endemic persistence; (2) Dysentery in gaols coincides with the issue of *badly cleaned rice or wheat*, weevil-eaten grain, or some neglect in the supervision of the *cooking*; (3) The communicability of dysentery in an institution may be accepted as a fact.

Relation of dysentery to abscess of the liver.—Leonard Rogers,[4] I.M.S., describes tropical liver abscess as the large single or multiple abscess in contra-distinction to multiple small pyæmic abscesses. In tropical abscess the amœba is a constantly found organism, and the term "amœbic" abscess should supplant the term tropical. Careful clinical records point to the conclusion that dysentery is constantly, or almost constantly, associated with tropical or amœbic abscess of the liver; but as dysentery, especially the amœboid form, may be latent for long periods, and then recur during or even after the onset of liver abscess, the relationship of the two as regards cause and effect is often obscured. In 80 per cent of Rogers's cases the dysenteric attack preceded the first symptoms of liver abscess, and in several of his cases in which the dysentery clinically coincided with, or succeeded in time, the onset of liver symptoms, *post-mortem* evidence appeared of dysenteric ulceration of a date prior to the liver disease in no fewer than 15 per cent, giving in all 95

per cent in which positive evidence of preceding dysentery was obtained.

Rogers's conclusions on the subject are as follows :—

(1,) The amœba is constantly found in the wall of a liver abscess cavity in an active condition.

(2,) Pyogenic bacteria are, as a rule, not found in hepatic pus when the abscess is first opened.

(3,) Dysentery by clinical or *post-mortem* evidence is present in over 90 per cent of cases of liver abscess.

(4,) Dysentery precedes liver abscess in 90 per cent of cases of hepatic abscess.

(5,) The form of dysentery associated with tropical abscess of the liver is amœbic dysentery.

(6.) The sloughing form of catarrhal dysentery may be associated with small multiple pyæmic abscess.

TREATMENT.—Buchanan[5] reports 855 cases of dysentery treated by **Salines,** with 9 deaths, or a mortality of only a little over 1 per cent. The mixture employed was as follows :—

℞ Sodii Sulphatis ʒj | Aquæ Formiculi ad ℥j

This dose was given from four to eight times a day, and continued on succeeding days until every trace of blood and mucus had disappeared. Should the symptoms return the saline must be repeated. The saline treatment is suitable for acute cases only ; it is not to be given in chronic cases, or in ulceration of the colon. In chronic cases after a dose or two of salines the exhibition of **Soda and Bismuth** or **Salol** suits best, with an occasional dose of **Castor Oil.** The diet in chronic dysentery should be rice-water and boiled milk.

Mate, R.A.,[6] states that in South Africa for cases of dysentery, which occurred amongst soldiers engaged in the Boer war, he found the best treatment to be :—

℞ Mag. Sulph.	ʒj	Tinct. Opii	♏x
Acid. Sulph. dil.	♏x	Hydr. Perchlor.	gr. $\frac{1}{32}$
Quinine Sulph.	gr. j	Aq. Menth.	ad ℥ss

A dose of this mixture to be given every three hours. Magnesium sulphate, unless combined with the drugs mentioned by Mate, did not give good results in South Africa.

Cruickshank[7] advocates purgation by **Sulphate of Magnesium** as the most efficacious method of treatment of *acute* dysentery ; he considers this drug a specific for the disease. The drug is prescribed with a little aromatic sulphuric acid, in a small

quantity of water, and given every five hours until an improvement in the stools occurs, when it is gradually lessened in quantity.

Sandwith[8] states that in Egypt he has long given up **Ipecacuanha** in *acute* dysentery, and considers if it is to be given at all it should be administered in *chronic* dysentery. Manson,[9] judging by the cases of dysentery which he had treated in London in patients coming from the tropics, found ipecacuanha most efficient given in a series of doses continued for one week. A dose of **Castor Oil** should also be given occasionally. Manson considers there is a certain amount of danger in giving salines in dysentery associated with extensive ulceration of the intestine.

Strasburgh[10] reports 2 cases of amœbic dysentery which yielded to **Ipecacuanha** after every other drug had failed. Both patients had contracted the disease in the tropics, and had suffered at intervals for several months previously to being put upon this treatment. The ipecacuanha was continued with 10 drops of **Laudanum.** Recurrent attacks were not, however, prevented. Strasburger regards this drug as a specific for amœbic dysentery.

Enemata.—Sandwith[11] strongly recommends in acute dysentery the use of **Enemata,** of at least one litre, containing alternately **Boracic Acid** and **Sulphate of Copper:** along with this treatment he also administers **Sulphates** and **Bismuth** by the mouth. He argues that if the disease was originally a local one, the treatment per rectum is the rational method. Wright[12] advocates enemata after the acute stage of dysentery has passed ; he recommends rectal injections of **Creolin** (4 c.c. to the pint), **Salicylic Acid** (2 grs. to the pint), and **Silver Nitrate** (1 gramme to the pint. The last named should not be used more often than twice a week.

The writer[13] advocates rest in bed ; first hot and then colder **Wet Packs** to the abdomen, reaching from below nipples to the groin ; the wet pack to be retained in position by a bath towel folded and pulled tightly round the body. Give mouthfuls of meat jelly or beef tea at intervals, and ricewater (*i.e.* the water rice is boiled in), barley water (made from Robinson's barley), or rice tea (boiling water poured over rice browned in the oven). A dose of **Castor Oil** and **Laudanum** to begin with, and repeat the castor oil alone in one or two drachm doses night and morning. In chronic dysentery the writer uses daily **Enemata** of boric acid or nitrate of silver $\frac{1}{4}$ grain to ounce, combined with rest in bed, and a meat diet of beef essence, scraped beef, beef

tea, and finely minced beef lightly cooked, withholding all starchy and milk food. He also advocates right colotomy and frequent irrigation of the lower bowel in cases of persistent chronic dysentery.

Richmond,[14] from experiences gained in South Africa, gives an account of various methods of treating dysentery during the Boer campaign. He soon found that none of the recognized methods were infallible. **Sulphates** of magnesium or sodium were useful for adults of robust constitution when administered quite early in the attack. **Ipecacuanha** was not found of marked advantage in South Africa, and according to Richmond did not bring about any amelioration of the symptoms until after twenty-four hours. **Tinct. Monsoniæ** combined with **Tinct. of Opium** was beneficial in some cases, especially those in which large quantities of blood were being passed. **Izal** in 3-minim doses, combined with 20 grains **Subnitrate of Bismuth,** or 5 to 10 minims of **Chlorodyne,** was a useful prescription in many cases of acute dysentery in South Africa; and **Bismuth and Opium** in chronic cases. **Carbolic Acid** in 3-minim doses served well instead of izal, and although many patients took 18 minims of the drug daily, no signs of carboluria resulted. **Enemata** of boric acid, copper sulphate, and silver nitrate, were useful in obstinate ulceration of the lower bowel.

REFERENCES.—[1]*Jour. Experiment. Med.* vol. vi, No. 2, p. 181, 1902; [2]*Brit. Med. Jour.* Sept. 20, 1902; [3]*Ibid.*; [4]*Ibid.*; [5]*Ibid.* April 13, 1901; [6]*Ibid.* May 11, 1901; [7]*Jour. Amer. Med. Assoc.* Jan. 5, 1901; [8]*Brit. Med. Jour.* Sept. 20, 1902; [9]*Ibid.*; [10]*Münch Med. Woch.* Sept. 9, 1902; [11]*Ibid.*; [12]*Univ. Med. Mag.* Feb. 1901; [13]*Brit. Med. Jour.* Sept. 20, 1902; [14]*Lancet,* June 15, 1901.

DYSENTERY. *R. Hutchison, M.D.*

The following summary of the latest views as to the etiology and treatment of this disease is based upon a series of articles which appeared in the *Therapeutic Gazette* of April 15, 1902.

ETIOLOGY.—From the point of view of causation, cases may be divided into two groups (1) Bacillary; (2) Amœbic. These terms are preferable to the more commonly used clinical appellations of "catarrhal," "tropical," "epidemic," and "diphtheritic," which correspond to no definite pathological types.

(1,) The *bacillary* form is produced by the *bacillus dysenteriæ*, a member of the colon typhoid group, first isolated by Shiga in Japan, and subsequently studied there by Ogata, and by

Flexner, Craig, Strong, Musgrave, and others in America. It is the common form of acute dysentery, and often occurs in epidemics, or breaks out sporadically or in institutions. It is very infectious, and is attended by diphtheritis and ulceration of the intestine, and when diphtheritis complicates amœbic dysentery, a mixed or terminal infection with the *bacillus dysenteriæ* should be suspected. The blood serum of patients affected by this form of the disease gives a definite reaction with the bacillus.

(2,) *Amœbic dysentery* is caused by the *amœba coli*, most of our knowledge of which we owe to the labours of the Johns Hopkins' School. It is a disease which chiefly affects adult males, and is very rarely seen in an acute form. Usually it runs a prolonged course, and kills chiefly by the secondary complications to which it gives rise, of which one of the commonest is abscess of the liver. It is identified by the presence of the amœba in the stools, and by the absence of the serum reaction.

Mixed forms of the disease also occur, the amœbic being grafted on the bacillary, or *vice versa*.

Treatment.—This may be considered as (1) Medicinal; (2) Local; and (3) Dietetic; more or less in combination.

(1,) Three chief plans of medicinal treatment of dysentery have been advocated, (*a*) By ipecacuanha; (*b*) By saline purgatives; (*c*) By intestinal antiseptics.

(*a*,) The *Ipecacuanha treatment* was introduced into Europe in 1642, and has been revived at various times since. It has recently fallen into rather undeserved neglect. The mode of action of the remedy is not understood, but its practical success in many cases is beyond dispute. Care must be taken to use a *fresh* and active preparation of the drug. Neglect of this precaution has caused many failures and disappointments. The following is the method of administration approved by most writers. The patient must lie on his back and try not to vomit. He should take only very little liquid, the stomach being as far as possible quite empty. Thirty drops of **Laudanum** are given by the mouth, and after half an hour 30 to 60 grains of **Ipecacuanha** in the form of a bolus. Meanwhile a **Sinapism** is applied to the epigastrium. The dose is repeated every four to six hours for one or two days, depending upon the character of the evacuation. If any dose is rejected, it should be repeated after a short interval. In a successful case, the first result is the relief of pain; next the subsidence of fever; and then the cessation

of bloody discharges. The usual sign that recovery is at hand is the passage of a large, painless, semi-fluid evacuation, resembling in colour the ipecacuanha powder. In acute cases these results follow very quickly ; in chronic cases complete recovery may be delayed, but great amelioration may usually be anticipated.

(*b*,) The *saline* or *purgative treatment* was described by French writers as long ago as 1861, though it has only recently attained wide recognition. **Sodium Sulphate** is the salt chiefly recommended. The original formula directed that 15--20 grms. should be dissolved in 500 c.cm. of water, and 4 tablespoonfuls administered every two to four hours, the treatment being continued for three or four days after the stools had become fæcal. Dabney recommends the following prescription :—

℞ Morphia	gr. ½-1	Aromatic Sulphuric Acid	℥j-jss.
Sod. Sulph.	℥j	Cinnamon Water	℥iv

A tablespoonful in two ounces of cold water every three hours.

After the stools have become feculent and free from blood he gives **Bismuth** in large doses.

(*c*) Of *antiseptic drugs* **Bismuth Salicylate, Salol,** and **Benzo-Napthol** have been most largely employed, but the results yielded by them have been disappointing, and they can only be regarded as occasional adjuvants to other forms of treatment. Richmond[1] has recently recommended the use of **Sulphur** in dysentery, as the result of his experience in South Africa, where it yielded very successful results. He gives 20 grains of sublimed sulphur every four hours, with the addition in acute cases of 5 grains of **Dover's Powder.** He regards this treatment as being both efficient, and unattended by disagreeable consequences. The results which he records are certainly striking.

As an adjuvant to all forms of treatment draughts of **Dilute Nitro-Hydrochloric Acid** (10--15 ♏ in half a glass of water every four hours) are of use, both from its action on the liver and from its effect in diminishing the alkalinity of the intestinal contents.

Malaria and intestinal *worms* are complicating factors in many cases. The former demands the addition of **Quinine** to the other remedies ; the latter are best treated by **Thymol,** two to three doses of 30 or 40 grains each being given at an interval of two hours, a saline purge preceding and an emetic following the administration.

(2,) *Local treatment* by **Rectal Injections** is recommended by many authorities, especially in chronic cases. The enema may

consist either of **Normal Saline** or of an antiseptic solution such as **Boric Acid** (10 grains to the ounce), **Sulpho-carbolate of Zinc,** (20 grains to the pint), or **Nitrate of Silver** (30 grains to two pints). In amœbic cases **Quinine** (1 to 5000) seems to have a specific influence. The enema should be given through a small œsophageal tube connected with a funnel raised not more than two feet. The tube should be passed as high up as possible, and the fluid allowed to run in very slowly. At least one and a half pints should be administered in this way, either very hot or quite cold. During the administration the patient may lie either on his back or upon his face, and his hips should be well raised. The enema may be repeated two or three times a day.

(3,) Authorities differ as to the best **Diet** in dysentery. As Hare points out, however, the chief indication is to select a diet which is both nourishing and well absorbed. He does not regard the general plan of giving milk in large quantities as a wise one, unless it has been either peptonised or freely diluted. Richmond orders a strictly farinaceous diet until diarrhœa has ceased for a week ; he regards meat as peculiarly dangerous. On the other hand Dabney is of opinion that in chronic cases, when the strength is failing, a generous diet should be allowed, consisting of fish, eggs, meat, and red wine. Dupaquier is in favour of a starvation plan in all acute cases.

References.—[1]*Lancet*, Nov. 23, 1901.

DYSPEPSIA (Disorders upon which it depends).

Boardman Reed, M.D., Philadelphia.

This title gives prominence to the term "dyspepsia," under which the laity generally, and a large proportion of the medical profession, still class a majority of the complaints arising from diseases in the digestive system, whether functional or organic. Pain or discomfort referable to the stomach generally is likely to be thus labelled at first, or until it has grown to be serious enough to demand attention from the specialist or the surgeon, or until the case comes to the *post-mortem* table. Then the real cause is ascertained. Often the early diagnosis goes a step further, and "acid dyspepsia," "windy dyspepsia," or "gastric catarrh" satisfies the patient through the long years of his sufferings, until some serious resulting chronic disease, such as nephritis or arterio-sclerosis, closes the picture, and apoplexy or paralysis is finally written in the death certificate.

Relations between Laboratory Workers and Clinicians.—The

general practitioner finds it exceedingly difficult to grapple with his daily work, and at the same time keep informed as to the more practically important of the avalanche of new things constantly crowding upon him, which relate *directly* to the practice of the healing art. He cannot well master the virtually new medical sciences, the literature of which is attaining such vast proportions, if at the same time he must earn a living and read up on the current advances in medical and surgical therapeutics. Yet these new sciences and the laboratory methods are really fundamental, and indispensable to clinical medicine. They may not be safely ignored by practitioners who would do full justice to their patients.

In the case of indigestion, not to ascertain during an early stage the *actual morbid process* which causes it, including the secretory and motor condition of the stomach, is often to permit the development of a dangerous or even fatal disease, which in its incipiency could have been easily controlled ; and though the stomach tube is dreaded by the uninitiated, and the knife is often refused altogether, even when known to be the only remedy, the physician should understand when to advise a resort to these, so that his whole duty may be done. He needs to familiarise himself, in so far as it is practicable, with every important new development bearing upon the causation of the maladies he treats, as well as with the best remedies with which to combat them, so that he may have all the available light and employ all the possible aids in preventing or curing them. The clinician and the investigator, then, should get together, and take a deeper interest each in the work of the other ; and to promote this end the latter should try to simplify the results of his observations, and report them in terms as little technical as possible. When this is not done, it devolves upon such works as the *Medical Annual* to boil down their results and translate them into plain English, with all necessary explanations as to their practical bearing.

Recent advances in Diagnosis and Treatment of the Indigestions.—A constantly increasing number of physicians, it is encouraging to know, are now beginning to study indigestion, both gastric and intestinal, along scientific lines. The significance of *secretory* faults, the great importance of *deficient motor power* in the muscular coats of the alimentary canal, and the often still greater importance of the very prevalent *displacements* of the abdominal viscera, are receiving recognition in some quarters ;

and perhaps the hope may be indulged that at no distant day the diagnosis of "dyspepsia" will seem as unsatisfactory to all intelligent practitioners as that of "cough" would now be considered.

Though there has been extraordinary activity during the past year among gastro-enterologists in all parts of the world, no startling discoveries have been reported. There has been, however, an increasing tendency to condemn the too frequent and prolonged practice of **Lavage**, especially in classes of cases, such as nervous dyspepsia and the milder forms of chronic gastritis or atonic dyspepsia, for which it is not necessary. Ewald has in the past repeatedly urged that if washing out the stomach is able to do good, it will do it *soon*, and that a long continuance of it is in most cases harmful. Boas has recently condemned lavage in gastric atony, ulcer, and the neuroses.[1] Indeed, specialists in gastric cases do not now abuse the stomach tube so much as others.

In Prof. Pawlow's laboratory valuable studies relating to the physiology of the stomach and of digestion are going on all the time. Results have recently been obtained there which indicate the presence in the stomach of a substance which reconverts peptones into a soluble and assimilable form of albumin. In the same laboratory Sawriew[2] has carried out a series of experiments on dogs which show that in case of any excessive irritation of the gastric glands, there is first increased secretion of HCl and pepsin (hyperchlorhydria and hyperpepsia), and later diminished secretion of both these elements of the gastric juice (hypochlorhydria and hypopepsia).

Digestive Power of the Stomach in various conditions.—Schorlemmer has carried out in Boas's laboratory in Berlin a series of experiments upon this subject which are of much practical importance.[3] As among the established facts concerning the digestion of albumin in the stomach, he points out that it is dependent upon various conditions, as follows: (1) The amount of free HCl present, though other acids, such as lactic, oxalic, phosphoric, and acetic, may substitute this to a certain extent. (2) The amount of pepsin present, this being by no means always in proportion to that of HCl. (3) The temperature, the range most favourable to proteid digestion being 98·6° to 104° F. (37° to 40° C.). At 32° F. digestion stops, and at 176° F. the pepsin is destroyed. (4) The presence of the products of digestion—peptones. These delay and finally stop peptic

digestion entirely, unless absorbed or passed on into the bowel. (5) The absence of certain salts, which hinder peptic digestion or even cause it to cease suddenly. These are the urates, and above all the sulphates. Small amounts of sodium chloride or the phosphates do not interfere with the digestive process.

Drinking at and after meals.—Much ignorant twaddle, not based upon any scientific knowledge, has been written concerning this point. Schorlemmer[4] has emphasized clearly the conditions under which drinking at or soon after meals is harmful. His experiments bear out the view that the rapidity of digestion of albumins in the stomach is in direct proportion to the amount of HCl present, and to the square root of the percentage of pepsin. This being true, the more the stomach contents are diluted with water or any liquid, the more slowly will digestion progress, except when the gastric juice is secreted in excess (hyperchlorhydria and hyperpepsia), and then drinking liberally at meals may be actually beneficial. It should be borne in mind, too, that the observations of several authors (including the writer hereof) indicate that an excessive secretion of HCl is found in a majority of cases of indigestion. But in the very numerous cases of atonic dyspepsia, with a deficient secretion, the more fluid put into the stomach during digestion, the more slowly and imperfectly the process goes on.

Auto-intoxication from the digestive tract.—There is a growing conviction on the part of both the men engaged in investigating the problems of metabolism from the laboratory side, and the more scientific clinical observers, that auto-intoxication by the products of indigestion and a faulty assimilation—*i.e.*, poisons formed either in the stomach or intestines, though most frequently in the latter—plays a very large *rôle* in the causation of systemic diseases. The evidences of this fact are multiplying on every hand, and a very considerable portion of medical literature has of late been engaged with this interesting subject. That the liver, kidneys, heart, and arterial system generally, and the nervous system, can be injuriously influenced in this way, chronic organic disease finally developing, is no longer open to question. The dependence of many skin diseases upon such a cause has long been recognized by leading dermatologists.

Hyperacidity from organic acids.—The very painful and stubborn forms of dyspepsia dependent upon excessive HCl in the stomach have been much discussed for years past. They formed the subject of numerous papers summarized in the

Annual for 1902 ; but excessive organic acidity and its harmfulness have attracted much less attention. Dr. Mark I. Knapp, of New York, has devoted an important paper to this disease.[5] Normally only a trace of organic acid is found in the stomach, but when the amount increases, or the HCl diminishes, symptoms develop. Dr. Knapp describes three forms of excess of organic acids in the stomach, which he names : (1) *Organacidia gastrica simplex ;* (2) *Gastrosia fungosa ;* and (3) *Zymosia gastrica.*

The first is a transitory condition due to the ingestion of large quantities of organic acids, as contained in fruits, salads, pickles, etc. Its symptoms vary from a slight heartburn to violent cramps. Its treatment consists of **Rest,** and the administration of an emetic or purgative.

Gastrosia fungosa is the most frequent form of the affection. Knapp uses the term gastrosia in contra-distinction to gastritis. It is caused by the presence of mould in the stomach. Microscopically mould can be recognized according to its amount, as yellowish green or dark red clusters, patches, or streaks. The green mould is often mistaken for bile, and the dark red mould for blood. What appears to be detritis, under the microscope is really mould. The so-called crystals seen in the chyme are only detached segments of mould filaments. The most common varieties of mould found are *penicillium glaucum, oidium albicans,* and the *aspergillus* group. It may be necessary to stain the specimen to detect the mould. Knapp uses for this purpose a solution of fuchsin (50 mgs. to 75 c.cms. distilled water). After staining, the specimen is decolourized with a decinormal solution of caustic soda. Gastrosia fungosa is caused by the ingestion of vegetables, fruits, and meats that contain mould in microscopical quantities. This mould remaining in the stomach after expulsion of the food, continues to develop if the surroundings are suitable. A saccharine medium favours this development.

The symptoms of gastrosia fungosa are heartburn, pain or cramps in the pyloric region, a choking sensation, thirst, polyuria, excessive perspiration, regurgitation, vomiting, and a frontal headache. For the diagnosis of this condition an Ewald test meal should be given. The quantity of chyme will be found increased, a result, Knapp believes, of the inability of the stomach to force the food out on account of a contracted pylorus irritated by the presence of excessive organic acids. The green colour of the chyme is due to the mould, while the pungent, sweet odour

is caused by the presence of succinic acid. This disease may cause varicose veins of the stomach, intestinal disturbances, and laryngismus stridulus in children.

As for treatment, the patient should avoid ingesting mould or food that is favourable to its development. **Lavage** should be practised. Sodium bicarbonate is of questionable use, and, indeed, aggravates the trouble in the end. Knapp advises HCl during the meal, and sulphuric and phosphoric acids ten minutes after the meal.

Zymosia gastrica is due to the presence of yeast cells in their budding, sporulating, and multiplying condition. Its symptoms are due to the development of CO_2, and consist of a feeling of oppression, palpitation of the heart, painful respiration, belching, gurgling, nausea, and vomiting. Microscopical examination of the chyme shows a large number of yeast chains and quantities of budding yeast. The yeast cells may be seen in process of chemical evolution into cells of acetic and butyric acid. By way of treatment the patient must avoid all foods that contain yeast ; the stomach should be **Washed Out,** and **Mineral Acids** administered. Knapp believes gastrosia fungosa and zymosia gastrica often occur together.

Hyperchlorhydric Dyspepsia.—Bardet[6] believes that the chief symptom of this condition—excessive secretion of HCl—is due to : (1) Inactivity of the skin ; (2) A tendency to an increase of the chlorhydric function ; (3) A tendency to a vitiated fermentation ; (4) The presence of constipation and hæmorrhoids ; and (5) Production and re-absorption of toxins. The treatment of this disease should include rest after meals, and a well-regulated diet, with no meats. For fermentation give **Naphthol, Benzoated Naphthol, Asaprol, Salol,** or **Bismuth Salicylate.** Bardet advises **Quassia** for the constipation.

Painful Dyspepsia due to moveable and floating kidney.—That HCl excess, with its usual resulting gastric pain and other notable symptoms, may be associated with, and apparently dependent upon, a moveable kidney, was observed and reported last year by several writers in England, France, and America, apparently independently of each other. Among these was Alex. MacGregor, of London, and the writer of this review. In MacGregor's paper[7] several cases were reported in which, along with moveable or floating kidney on one side or the other, there were paroxysms of severe gastric pain, with retching or vomiting in some. There was no mention of tests of the gastric

contents, and probably none were made. The employment of belts and pads afforded relief in some of the cases and failed in others. In several similar cases reported by the reviewer,[8] in which there was gastric pain complicating cases of nephroptosis, frequent tests were made of the stomach contents, and in all the percentage of HCl was usually excessive until after the offending kidney (which in every instance was the right one) was caused to remain in its normal place by either mechanical treatment—the employment of a pad and belt very carefully adjusted—or else by the operation of nephrorrhaphy. It is important to add, however, that he has found the operation to fail in a considerable proportion of his cases, and of late he has had much more uniform success in overcoming the displacement of the kidney by the application of strips of adhesive plaster to support the abdomen, according to the plan recommended by Dr. A. Rose, of New York.[9]

Acute Dilatation of the Stomach.—This somewhat rare and generally fatal disease has been recently elaborately discussed, especially in England. Dr. Campbell Thomson reported four new cases,[10] and Dr. Charles R. Box has since reported two new ones,[11] which were additional to 16 cases of the same disease tabulated and previously reported by him in a paper read before the Clinical Society of London in 1898. Acute dilatation of the stomach was first fully described by Dr. Hilton Fagge, who recorded four cases, two of which had come under his own personal observation. Two of Dr. Thomson's cases followed shortly after operation upon abdominal organs, and one was a complication of acute pulmonary pneumonia. Four came on obscurely and without apparent cause, except that at the autopsy the pyloric orifice of the stomach was found considerably narrowed by a growth. Of Dr. Box's two recent cases, one followed severe traumatism of the knee-joint, for which an arthrectomy was done; the other developed during an acute attack of pleuro-pneumonia. The etiology of these extraordinary cases is a point around which centres the greatest interest, and no theory so far propounded as to the causes has met with universal assent. In the discussion upon Dr. Thomson's paper, it was suggested, as it had been before, that some obstruction at the pylorus, either organic or spasmodic, was probably the cause. As pointed out, however, by Dr. Box in his able presentation of the subject, this theory is really refuted by the fact that in certain of the cases bile is vomited, showing patency

of the pylorus, and that in a considerable proportion of them a part or the whole of the duodenum was at the autopsy found dilated, as well as the stomach. He maintains that two factors are necessary to the production of acute dilatation: (1) A paralytic condition of the viscus leading to distension; and (2) The pressing of the duodenum against the spinal column by the distended stomach. Though nearly all the recorded cases have thus far proved fatal, it is considered likely that many unrecognized mild ones have recovered. In view of the great importance of making the diagnosis early, a familiarity with the characteristic symptoms is needed, and in every one which presents a number of these symptoms the stomach should be carefully mapped out so as to determine its position and size. The most striking symptoms of acute dilatation are severe epigastric pain, repeated and uncontrollable vomiting, often profuse and obstinate diarrhœa, with great exhaustion, and marked tenderness over the abdomen, simulating acute peritonitis. It may be easily mistaken for the latter, since fever is also sometimes present. There may likewise be complete anuria.

As to treatment, **Strychnine Injections, Lavage, Rectal Feeding,** and intravenous or rectal **Saline Injections** have been insisted upon by most writers. The postural method of relieving the assumed obstruction seems to have failed, and Thomson has not found it successful even in the cadaver, with the abdomen freely opened. However, he advises the right-sided or prone position after syphonage. Gastro-jejunostomy is recommended by Mayo Robson when an operation of any kind seems to promise favourable results.

Atonic Dyspepsia.—Much more attention than formerly is now devoted by writers and by clinicians generally to the faults of the stomach on the side of its muscular apparatus. What is described by most authors as motor insufficiency is better understood by practitioners generally as gastric atony or atonic dyspepsia. Dr. Alfred H. Carter,[12] in a lecture delivered at the Queen's Hospital at Birmingham, in discussing this disease, divided it into two classes: (1) Atony with stagnation; and (2) Atony with retention. In the former class the stomach becomes empty at least once in the twenty-four hours, no food being found in it in the early morning before breakfast. In the other class the stomach is never entirely empty, but even before breakfast considerable partly-digested food is found in it. He insists that this distinction is important, because not only

are the signs and symptoms different, but the treatment is different for the two classes of cases.

In stagnation merely there is no splashing sound to be elicited in the stomach in the morning before breakfast, while in retention there usually is. A surer method of determining whether the stomach be empty of food at this time is to introduce a tube and withdraw whatever contents may be there. A further sign of stagnation is to empty the viscus seven hours after an ordinary full mixed meal, when, if there are still remnants of food, motor insufficiency, or atony with stagnation, is unquestionably proved. The symptoms of atony with stagnation are bloating and discomfort after meals, eructations, impaired sleep, constipation, usually some loss of flesh and strength, and often headache. In atony with retention these symptoms are intensified, and there are, besides, vomiting of very sour, offensive fluid, containing often fragments of food taken one or several days previously. In both classes the symptoms are frequently worse after liquid than after solid food.

The causes of atony Dr. Carter ranges in two principal groups : (1) Those acting directly upon the stomach, such as excessive eating and drinking, hurried meals, large drinks between meals, etc. ; (2) Those acting indirectly by lowering the general health and nutrition, such as bad hygiene, nervous exhaustion and anxiety, and exhaustion brought about by severe acute disease. He emphasizes faulty dress in women, especially the constriction of the waist by belts or corsets, as prominent among the causes ; also sedentary occupations, and particularly sitting in a cramped position after meals.

Treatment.—For atony with stagnation, Carter advises above all a carefully **Restricted Diet,** with avoidance of overdistension, giving time for the stomach to get rid of one meal before another is taken, and to meet the requirements of nutrition. He considers that the problem of maintaining nutrition sufficiently high in spite of the crippled condition of the stomach is best achieved by giving three fairly substantial meals (say, at 8 a.m., 1.30 p.m., and 7 p.m.) than by allowing the patient small feedings at more frequent intervals. He has found that some mild cases can be remedied by merely stopping the "afternoon tea" which is so popular an institution, in England especially. As little fluid should be taken with the food as possible, and such aliments as meat, lightly-boiled eggs, and easily-digestible cereals should be preferred to more bulky and less nutritious

ones. Milk taken alone is eminently unsuitable. Animal food suits better than vegetable ; pastry and other very fermentable foods should be avoided. Drinks should be taken between meals, when the stomach is empty or nearly so. Dr. Carter also advises **Rest** of 20 or 30 minutes after every meal. No tight clothing, such as belts or corsets, should be worn, and exercises designed to strengthen the abdominal walls should be regularly carried out. Massage of the abdominal muscles, alternate hot and cold douches to the abdomen, and a close-fitting abdominal support are further advised. **Strychnia** is recommended as the most valuable drug, either combined with **Bicarbonate of Soda** and **Arsenic** and taken just before meals, or with **Hydrochloric Acid** and **Pepsin** after meals. He does not mention the important fact that whether the soda or the acid will accomplish the better results, depends upon the secretory condition of the gastric glands.

As to the treatment of atony with retention, Dr. Carter begins by putting the patient to bed for a week or so, and feeding merely nitrogenous food four times a day, allowing half a tumbler of hot water an hour before each meal. He allows no tea or coffee, but does not object to ℥ij of a good spirit in a wineglassful of water with some of the meals. He **Washes Out** the stomach in all but the mildest forms, and, as a rule, in the morning, but sometimes the last thing at night, when the sleep is greatly disturbed from gastric disorders. He uses for the lavement a teaspoonful of boric acid and 15 or 20 grains of salicylic acid to the pint. Medicinally he advises an **Alkali** in combination with **Sulphocarbolate of Sodium** or **Resorcin**, and finds it beneficial to give grs. 20 of **Carbonate of Bismuth** immediately after lavage.

Influence of Sugar on gastric secretion.—Clemm,[13] by a large number of experiments on dogs, determined the action of sugar on the secretions of the stomach. He found that sugar inhibits to a great extent the production of the gastric juice, and especially HCl. Therefore he infers that hypersecretion and hyperacidity may be hopefully treated by the administration of **Sugar.** Morgan, of Washington, and others have made the same observation on numerous patients with excessive secretion of HCl, but sugar has so far not proved of much service in the treatment of hyperchlorhydria. It is likely to disturb the liver and the intestinal digestion in these cases.

The Pine-apple as a digestive aid.—The pine-apple has long been used as an aid to digestion, Its active principle, **Bromoline**

is the basis of a well-known beef jelly, and is a most satisfactory extract. Wingrave[14] advises that this fruit should be eaten in very small quantities, not more than a small slice at a meal. It should be well masticated and the fibrous part rejected. It should be ripe, but not cooked. The preserved form has no digestive value.

The too frequent use of Gastric Lavage.—Mathieu and Laboulais[15] protest against the treatment of certain maladies of the stomach by lavage. They believe that the constant washing out of the stomach weakens the motor power of that organ. The authors advise the emptying of the stomach every morning, while fasting, by means of a tube, but without lavage. This is followed by the introduction of a quantity of powdered meat suspended in milk. The amount of each feeding should be steadily increased daily until 100 grms. of the powder and 400 c.c. of the milk are introduced at a time. This treatment, they claim, is of special value in cases of pyloric stenosis which has resulted from the healing of an ulcer. In this connection it is worthy of note that a recent writer has suggested a novel plan to facilitate the introduction of the stomach tube. To prevent nausea and discomfort, 2 to 3 inches of the end of the tube may be **Frozen** before introducing it. This can be done with ethyl chloride spray. It is believed that the cold tube causes anæsthesia of the fauces and pharynx.

Topical diagnosis of Gastric Tumours.—The gastric mucosa secretes both pepsin and rennet at the fundus, while at the pylorus it only produces pepsin. Glaessner[16] makes use of these facts in localizing tumours of the stomach. He claims that if after a test meal the chyme shows a decrease both in rennet and pepsin, the tumour is situated at the fundus. If only the pepsin is found decreased in amount, the tumour is at the pylorus.

Gastric Tetany.—Within recent years considerable attention has been given to the subject of tetany associated with dilatation of the stomach. A large number of cases thus affected have been reported, but very little has been done to explain the nature and cause of the condition. Halliburton and McKendrick[17] have performed a large number of experiments on the lower animals to determine, if possible, the cause of gastric tetany. They concluded from these experiments that tetany results from an auto-intoxication. They believe that a poisonous substance is formed in the stomach which, when absorbed, gives rise to the tetanoid contractures and the other concomitant

symptoms known in this disease. The exact nature of this toxic substance is not known. It is soluble in alcohol and normal saline solution. It has a marked acid reaction. Its injection into animals causes either direct or reflex excitation of the cardio-inhibitory centre.

Undetected Hæmorrhage in the stomach.—Slight gastric hæmorrhages may occur which are never detected macroscopically. While the observation of minute quantities of blood in the vomitus is not of sufficient importance to be a diagnostic sign, yet it may be a valuable addition to the present method of diagnosis. Boas[18] examined the stomach contents of a large number of patients for the presence of blood. He used for this purpose the Weber's modification of the guiac test. Blood was found in every one of the cases, although in the majority it was not to be made out on gross examination. Boas determined that blood is especially likely to be present in typical ulcer, tumours with a tendency to ulceration, and in cases of well-marked chronic passive congestion. The finding of small amounts of blood may help to distinguish doubtful cases of ulcer from gastric neuroses. If it be a question of carcinoma, the great frequency of the presence of blood in that condition is in sharp contrast to the fact that in chronic gastritis with an acidity no blood is found. Boas suggests that the constant loss of small quantities of blood may be the cause of the cachexia in carcinoma.

Hæmatemesis, Gastric Pain, and Vomiting without Ulcer.—Statistics teach us that clinically gastric ulcer is more common in women than in men, while the *post-mortem* records show the contrary. Either this disease is less fatal in women, or it is often wrongly diagnosed. White[19] believes the latter is true. From his experience he has observed that many young women suffering from gastric pain, vomiting, and hæmatemesis do not have gastric ulcer, but some trouble closely related to chlorosis. The pathology of the latter disease is yet unexplained. White advises against surgical interference in these cases. The hæmorrhage is usually controlled by giving the stomach complete rest and feeding per rectum. The treatment should be that of chlorosis.

Relation of impoverished blood to Gastric Ulcer.—Wilson[20] believes that there is either a local or general anæmia present in every case of gastric ulcer. When this condition of anæmia is corrected there is a marked tendency to heal. The anæmia

PLATE X.

TYMPANIC CAVITY.

SOME CONDITIONS SEEN THROUGH THE SPECULUM.



FIG. A.—*Normal tympanic membrane.*



FIG. B.—*Normal tympanic membrane.*

Colour.—Pale slate or parchment appearance, lustre good; the triangle or spot of light is seen to project downward from near the tip of the handle of the malleus.



FIG. C.—*Exostosis of the external auditory canal.* Sensation of ivory hardness when tip of probe is applied to the swellings. The masses have been under observation for many years, and show no change. No history of syphilis.



FIG. D.—*Exostosis of the external auditory canal.* The masses are here so closely approximated that the tip of a probe cannot pass between them. There is a history of syphilis.



FIG. E.—*Inflammation of the tympanic membrane and middle ear.*—The reddening, which was at one time general, is disappearing. The patient had an acute cold in the head.



FIG. F.—*Subacute middle ear inflammation, with reddening of the tympanic membrane.* The whole membrane has a suffused red look. There are abundant post-nasal adenoids, and there is some pain and a good deal of deafness.



FIG. G.—*Subacute inflammation of the tympanic membrane.* The surface is abraded at several spots. The condition was part of, or at least followed, an eczema of the external auditory canal.

MORRISON & GIBB Lᵀᴰ EDINBURGH

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

TYMPANIC CAVITY—*continued.*



FIG. H.—*Retraction of tympanic membrane.* The malleus is pulled inwards and swung round, the handle being seen somewhat foreshortened or end-on.

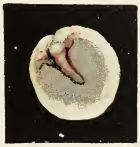


FIG. I.—*Retracted tympanic membrane.* The centre seems thinner, and probably *is* thinner than normal. The circumference seems thicker, but is seen foreshortened.



FIG. K.—*Calcareous patches in tympanic membrane.* There is no history of discharge from the ear. There has been nasal obstruction.



FIG. L.—*Healed perforation.* There was a history of suppurative disease during childhood.



FIG. M.—*Pus exuding from a perforation in tympanic membrane.* The bead is replaced immediately it is wiped off with a cotton tip, and the membrane bulges a little. After free incision of the membrane, healing followed rapidly.



FIG. N.—*Small perforation of tympanic membrane.* The ear is wettest at night, when the patient lies on the affected side, and the perforation is properly placed for drainage.



FIG. O.—*Perforation in Shrapnell's membrane.* Through the perforation the probe easily touches a necrosed ossicle—probably malleus. Healing followed without operation.

MORRISON & GIBB L^TD EDINBURGH



FIG. P.—*Destruction of the tympanic membrane.* Only a rim is left. The handle of the malleus projects into the cavity of the tympanic. The internal tympanic wall is bare. Suppuration is slight, but has lasted for many years—since measles in childhood.



FIG. Q.—*Destruction of the tympanic membrane, scarlatinal otitis media.* The whole membrane is gone except a small portion held by the malleus. The discharge is very slight, but the probe strikes the bare inner wall.

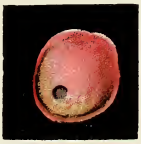


FIG. R.—*Destruction of the tympanic membrane, scarlatinal otitis media.* The tympanic cavity is empty of the membrane and ossicles. The dark depression is probably the fenestra rotunda.



FIG. S.—*Double perforation of the tympanic membrane.* A case of middle ear suppuration of several months' standing.



FIG. T.—*Multiple perforation in the tympanic membrane.* No search was made for the bacillus of tubercle, but there have been no painful symptoms, and there are other evidences of the tuberculous tendency in the case.



FIG. V.—*Granulation masses in the tympanic cavity.* Discharge began after scarlet fever six years previously; the upper and back mass was found at the radical operation to project through the tegmen antri, and to lie against the dura mater.



FIG. W.—*Granulation masses in the tympanic cavity.*—These filled up almost the whole inner end of the external auditory canal. No membrane existed. After removal of the masses, healing took place without the radical operation. A necrosed ossicle was extracted.



FIG. X.—*Granulation masses in the tympanic cavity.* There is no membrane. The masses recurred after removal. The radical operation will be required, or at least an ossiculectomy, for a necrosed incus can be made out.

MORRISON & GIBB L^TD EDINBURGH

EXPERT
OF THE
UNIVERSITY OF ILLINOIS

usually assumes the chlorotic type. Many ulcers follow hæmorrhages of one form or another. On the other hand, gastric ulcer may occur in persons with a perfectly normal blood count, who seem to be in a state of good bodily nutrition. When the ulcer is due to a change in the blood, the likelihood of its healing bears an intimate relation to the quality and quantity of the pyloric blood supply. (See also "Intestinal Indigestion.")

REFERENCES.—[1]*Ther. d. Gegenw.* Dec. 1901 ; [2]Material toward the Physiology and Pathology of the Gastric Glands of Dogs, *Dissertation St. Petersburg ;* [3]*Arch. f. Verdauungskrankh.* Bd. viii, Hft. 3 ; [4]*Loc. cit.* ; [5]*New York Med. Rec.* Sept. 6, 1902 ; [6]*Les Nouv. Remèdes*, Nov. 24, 1892 ; [7]*Lancet*, Dec. 14, 1901 ; [8]*Inter. Med. Mag.* March, 1902; [9]*New York Postgraduate*, March, 1900 ; *New York Med. Rec.* Dec. 22, 1900 ; [10]*Lancet*, Oct. 26, 1901 ; [11]*Ibid.* Nov. 9, 1901 ; [12]*Birm. Med. Rev.* Jan. 1902 ; [13]*Therap. Monats.* 1901 ; [14]*Lancet*, June, 1902 ; [15]*Bull. de Thérap.* Nov. 1901 ; [16]*Berlin klin. Woch.* July 21, 1902 ; [17]*Brit. Med. Jour.* June 29, 1901 ; [18]*Deut. Med. Woch.* vol. xxvii, p. 315 ; [19]*Guy's Hosp. Gaz.* Aug. 1901 ; [20]*Jour. Amer. Med. Assoc.* Sept. 20, 1902.

EAR (Diseases of). *James Kerr Love, M.D.*

DIAGNOSIS OF DISEASES OF THE MIDDLE EAR.—*What may be Seen through the Speculum.*—The examination of the ear by mirror and speculum is of great importance to the practitioner in the diagnosis and treatment of aural disease, and also in ordinary clinical work. The necessary manipulations are not difficult, and are described in nearly all textbooks on diseases of the ear, and also in the *Medical Annual* for 1902, *pp.* 249-250. *Plates X, XI,* and *XII* show the appearances most commonly presented to the surgeon when a good light is reflected from a forehead mirror into an aural speculum properly placed in the external auditory canal. It is assumed that any foreign body, or ceruminous collection, or collection of pus, has been removed. Sufficient details are appended to the respective figures.

Otitis Media.—Wendell C. Phillips[1] insists on the importance of microscopic examination of the pus in all acute middle-ear suppurations, especially in cases of influenza. If streptococci and staphylococci are present the involvement of the mastoid may be expected, and when the latter threatens, the external operation should be performed at once. He thinks not more than twenty-four or thirty-six hours should be spent over such palliative measures as the ice-coil or hot douching of the ear.

Of course the decision to operate is not made on the microscopical examination of the pus and blood only, but after studying the usual symptoms, *viz.*, pain, tenderness to pressure over the mastoid antrum, the temperature, the appearance of the drum membrane, etc.

Dr. John Funke[2] contributes a study of 76 cases to elucidate the bacteriology of otitis media. He concludes that there is no specific organism of otitis media The organisms commonly found are, in order of frequency : The pneumococcus, streptococcus, pyogenic staphylococci, and the bacillus of Friedländer. The author speaks of a definite grippal otitis due primarily to the influenza bacillus, which, however, becomes quickly associated with, or replaced by, other organisms. The *bacillus diphtheriæ* is more commonly present in otorrhœa than is generally believed. It may (*a*) be the initial infecting agent ; (*b*) enter with the streptococcus or pneumococcus ; or (*c*) be a secondary infection carried to the already infected ear by the fingers of the patient, or otherwise. The streptococcus infections are more grave than pure pneumococcus infections, but both are usually supplanted by the staphylococci sooner or later. Chronic suppurative otitis media is practically always polymicrobic.

Tuberculous Otitis Media.—Grimmer[3] makes a valuable contribution to this subject. He investigated these points :—

(1,) What light is thrown on the nature of an otitis by the symptoms.

(2,) The proportion of tuberculous cases : (*a*) In children ; (*b*) In adults.

(3,) What evidence is got by examination with the naked eye of the contents of the middle ear, the naso-pharynx, or neighbouring enlarged glands.

(4,) How the bacillus reaches the middle ear.

(5, 6, 7,) The relationship of tuberculosis of the ear to the same condition in other organs.

(8,) The evidence from innoculation experiments.

Grimmer describes the development of our knowledge of the subject from the discovery of the bacillus of tubercle down to the present time, quoting Von Tröltsch, Koch, Eschle, McBride, Gruber, Voltolini, Habermann, Milligan, Politzer, Scheibe, Winkler, Brieger, Kuester, Moos, Schwartze, Hartmann, Hovel, Dench, Roosa, Haenel, etc., and then proceeds to examine his own 19 cases of suppurative otitis media, 5 of which were tuberculous, 13 non-tuberculous, and 1 doubtful. Perhaps it would

be better not to quote percentages where the total number of cases is so small, but the following indicate Grimmer's conclusions :—

(1,) Advanced tuberculous changes may be present in the mucous membrane of the tympanum and of the tympanic membrane itself, without producing visible evidence through the external auditory meatus.

(2,) The membrana propria of the drum-head offers marked resistance to tuberculous infiltration, and is only destroyed by a process of erosion ; this resistance also accounts for the frequency of multiple perforations in tuberculous cases.

(3,) Latent tuberculous naso-pharyngeal adenoids and all other latent foci must be excluded before deciding that any case of middle-ear tuberculosis is a primary affection.

(4,) A high percentage of cases of suppurative otitis media with neighbouring bone lesion in children under five years of age is tuberculous ; in older persons only a small percentage is tuberculous.

(5,) Intraperitoneal inoculation of guinea-pigs is a good and reliable method of proving the presence or absence of tuberculosis in granulations from the middle ear. Reliable proofs may also be obtained by examining microscopically such granulations, or even an enlarged mastoid gland, or naso-pharyngeal adenoid when present.

(6,) In cases of suppurative otitis media the absence of ear pain, early and extensive destruction of bone, early facial paralysis, multiple perforations, pale flabby granulations with caseous points in the meatus about a mastoid sinus or in the mastoid antrum, and an enlarged mastoid gland, point strongly to the disease being tuberculous.

(7,) The detection of bare bone through the meatus with a probe, the character of the discharge, facial paralysis, and extensive destruction of bone occurring as a late symptom, are of doubtful value in arriving at a diagnosis, while the presence of cholesteatomous masses is positively opposed to tubercles being present.

Geo. L. Richards[4] contributes a paper on the operative treatment of chronic suppurative otitis media. The choice is between ossiculectomy and the radical operation. He believes it to be a duty in all cases of suppurative otitis media, which are not cured within a reasonable time, to urge upon the patient the need of more radical surgery for the removal of the

entire diseased area, and the promotion, as far as possible, of a positive cure. He claims that hearing is rather improved than diminished by operative treatment, and he seems to prefer the radical operation to ossiculectomy. In the discussion which followed, Dench supported Richards' views, but was certain that so far as audition is concerned the hearing was worse after the radical operation than after ossiculectomy, and prefers the latter where the disease is limited to the ossicles and attic. Myles preferred the radical operation, to which he had often resorted after a disappointing result following ossiculectomy. Phillips and Bates advocated the Stacke-Schwartze operation, as applicable to a great many cases. Toeplitz pointed out the frequency with which the labyrinth is involved in these cases, and the difficulty and danger of operation in cases where the labyrinth had to be entered by the surgeon Kerr Love[5] does not think that any time can be fixed for the carrying on of non-operative treatment, at the expiry of which radical measures should be adopted. He prefers to judge each case on its merits. He does the operation at once if granulations which have been removed from the neighbourhood of the aditus ad antrum recur in spite of careful cleansing, but where the distribution of the granulations and the result of probing point to the attic alone he practises ossiculectomy, and continues non-operative treatment for a very long time before proposing the radical operation. The three most important diagnostic points are :—

(1,) The distribution of granulation masses in the middle ear.

(2,) The occurrence of pain on pressure over the mastoid process.

(3,) The information got by mastoid auscultation.

His conclusions regarding operative treatment are these :—

(1,) That all cases of old-standing disease of the middle ear in which the discharge cannot be stopped by palliative treatment should be treated by operation, and by the radical operation if necessary.

(2,) That in performing the mastoid operation the routine treatment should consist of removal of the entire posterior bony wall of the external auditory canal, splitting the soft parts into the bony wound, stitching the mastoid wound closely, and conducting subsequent dressings through the split canal.

(3,) That there is no practical advantage in skin-grafting the tympano-antral cavity, except it be unusually large, but that in the latter case the proceeding is of great value.

(4,) That for rapid and certain healing the prime conditions are removal of every vestige of disease, and the reduction of the tympano-antral recesses to one plain-walled cavity, every part of which is easily accessible from the split external auditory canal.

(5,) The radical mastoid operation does not usually further impair hearing.

Operation having been decided on, the chief factor in its success is thoroughness. Unless there is strong reason to believe that the disease is confined to the attic of the tympanum, the radical or complete Schwartze-Stacke operation should be performed. A free opening should be made from the mastoid antrum to the middle ear, the whole depth of the posterior bony wall of the external auditory canal being removed, and every recess and pocket should be scraped or burred after chiselling has been finished. Nor should the internal ear be neglected as sinuses sometimes exist into the semi-circular canals, and even into the cochlea, and there is every reason to believe that infection sometimes reaches the contents of the skull through these sinuses. After the operation on the bone, the soft parts may be dealt with according to the bias of the operator. Generally the posterior wall of the cartilaginous canal is split, flaps made so as to line the induced cavity in the bone, and later on a grafting operation may be performed to hasten healing.

Such is the radical treatment of chronic suppuration within the temporal bone, where such suppuration is to be dealt with in the absence of any acute symptoms, and where there is no suspicion of intra-cranial or systemic infection. Simple acute mastoiditis of *recent* origin often gets well with a less formidable operation. Here the thorough ablation of the mastoid cells alone—the Schwartze operation—will often be followed by healing in a few weeks.

When intra-cranial or systemic infection has taken place much more may have to be done. Exactly what should be done may have to be left undecided till the operator sees what exists when he has laid bare the sinus wall, but there is no doubt that the modern tendency is to tie the jugular vein in the neck, unless the findings are such as to account fully for the symptoms, and unless the fear of further infection can be confidently set aside. The tying of the vein does not seem to increase the risk to the patient, and although the vessel is not the only channel of infection, it is the direct route from the infected area.

Thrombosis of the lateral sinus.—D. E. B. Dench[6] bases his conclusions on 22 cases on which he has operated. In a mastoid case in which the sinus is suspected Dench lays bare the sinus for three-quarters of an inch, and after removing every focus of infection, splits the sinus and curettes its lumen upwards and downwards, not ceasing till free hæmorrhage is got from both upper and lower angles of the sinus wound. If after this the temperatures indicate pyæmic infection, Dench advises dissecting out the internal jugular vein from the sternal attachment of the sterno-mastoid to the tip of the mastoid process, ligating the common trunk of the temporal and facial veins, and any other vessels which may be found. In deciding on the course to be taken in dealing with the internal jugular, Dench relies on the temperature chart, and not on the presence of tenderness in the neck.

Ballance[7] makes a valuable contribution upon the intracranial complications of middle-ear disease. After classifying septicæmia and pyæmia as occurring in other parts of the body, he proceeds to treat of the special condition of venous infection occurring in connection with suppuration within the temporal bone—great tension of the purulent contents in the bone, the absence of lymphatics, and the presence of small veins directly entering the sinus. When thrombosis occurs it is the secondary infection of the clot, and not the occurrence of the thrombosis, that constitutes the danger. Attention is drawn to the fact that pyæmia may be due to thrombi elsewhere, for instance, in the superior petrosal sinus.

Mr. Ballance then discusses some surgical and pathological considerations to show that the jugular, though not the only route, is the direct route for the conveyance of infection from the diseased area; that the jugular bulb is sometimes infected though the lateral sinus be free, and that the tying of the jugular is always a safe procedure. He then quotes Viereck's statistics on ligation of the jugular, along with Viereck's conclusion: "In ligature we possess a method which prevents pyæmic infection more surely than does operation on the sinus alone, with which therefore it should always be combined. In order to avoid the danger of detachment of fragments of clot and of entrance of air into the vein, the operation on the vein should precede that on the sinus." The conclusions of Brieger, Jansen, McEwen and Preysing are then dealt with, after which Mr. Ballance gives his own conclusions—thus: The operation on the vein should be

undertaken (*a*) in acute pyæmia and acute septicæmia, whether the sinus is occupied by clot or by fluid blood; (*b*) if the sinus wall is gangrenous, or its contents are putrefying, unless it is perfectly clear that on both sides of the inflammation the lumen of the sinus is completely blocked by non-infective thrombi; (*c*) if it is proved, or even suspected, that the blood of the jugular vein is in part or wholly clotted; (*d*) if the jugular vein is thrombosed.

Ablation of the vein from the subclavian to the jugular bulb is advocated in preference to ligature, and in dealing with the operation on the sinus region, Mr. Ballance advocates slitting the whole sinus, from the torcular to the bulb, rather than the curetting of the contents of the sinus through an opening in its wall.

Cases of sinus thrombosis, pyæmia, or cerebral abscess following suppurative middle-ear disease are recorded by Dudley,[8] Murrell,[9] Sheppard,[10] McCaw,[11] Passow,[12] Röpke,[13] Phillips,[14] Hinsberg,[15] Preysing,[16] Richards,[17] Cohn,[18] Rimini,[19] Manasse,[20] Arnold Knapp,[21] Witte and Sturm.[22]

Sclerosis of Middle Ear.—At the Manchester meeting of the British Medical Association[23] a discussion took place "On the Aims and Limitations of Intra-nasal Surgical Procedures in the Treatment of Chronic Non-suppurative Middle-Ear Disease." There was some divergence of views expressed by various speakers, but the consensus of opinion seemed to be that within recent years the attempts to cure deafness by intra-nasal operation had been overdone; that generally where a nasal obstruction is causing deafness it is also giving rise to a naso-pharyngeal inflammation, which latter is the more immediate cause of the deafness. In the absence of such a naso-pharyngeal inflammation, operation on the purely nasal condition will not cure the deafness. As practical guides in the prognosis, the value of inflation for procuring temporary improvement in the hearing, and the occurrence of greater deafness during attacks of cold in the head, were mentioned by various speakers. Almost all agreed that in purely sclerotic cases intra-nasal operation never did good, and often did harm.

Dr. Chalmers Watson[24] has been treating such cases of middle-ear disease by the instillation of a preparation of bone-marrow which he calls **Myelocene,** and which he holds acts "by restoring a greater degree of flexibility to the tympanic membrane and associated structures." Dr. Watson thinks myelocene acts:

(*a*) By an increased vascular activity, more especially of the capillaries; (*b*) Specifically in virtue of an enzyme or other active principle found in bone.

Obstruction of Eustachian tube.—Kenefick[25] records several cases of organized stricture treated by electrolysis. A gold wire bougie, with a tip 1-2 mm. in diameter and of a length sufficient to extend $1\frac{3}{4}$ inches beyond a catheter tip, is introduced through an ordinary silver catheter, which has been wound with rubber tissue for insulation. The wire bougie is made the negative electrode, and a current of 30-35 volts and of $1\frac{1}{2}$-5 milliampères is passed for a minute or more, while the tip of the bougie is held firmly against the obstruction; the bougie is made to enter the tympanum. His conclusions are as follows:—

(1,) That it cannot be foretold exactly in any given case just what result will follow this treatment, as this will depend greatly on two comparatively unknown quantities, *viz.*: (*a*) On the vascularity of the tube lining and its toleration of mechanical and electrical interference; (*b*) On the degree of tympanic involvement.

(2,) That tubal obstruction is early present in the great majority of cases of chronic hypertrophic catarrhal otitis media, and that progressive deafness, tinnitus and vertigo, and many of the distressing head symptoms may be purely mechanical, dependent on closure of the tube by an organized obstruction, while the tympanum and its structures are yet free, or only slightly involved. Under the latter circumstances brilliant results may follow restoration of the tube's patency.

(3,) That in any case where Eustachian obstruction has become organized, the best means of disintegrating and causing its re-absorption is by the electrolytic bougie, which in rapidity, efficiency, and permanency excels all known methods.

Dr. Harris's[26] experience of this method is interesting. In 33 cases, 24 had tinnitus of a chronic nature, and of this number 1 was cured, 13 were improved, and 12 were not improved. Only 13 complained of difficulty in hearing, and of these 12 were improved. Harris thinks that the electrical current, even when properly used, is capable of causing adhesions in the tube, and that the effect in relaxing stricture is not permanent. In spite of aseptic precautions, suppuration of the ear followed in three cases, and in one case it extended to the mastoid.

In a discussion which followed the reading of Harris's paper, and in which Richards, Phillips, Brandegee, Kenefick, Duel,

Dench and others took part, much difference of opinion was expressed both as to the value and the safety of this procedure.

Pierce[27] concludes with regard to electrolysis in the Eustachian tubes as follows: (1) In oto-sclerotic cases it is useless; (2) In the great majority of cases of catarrhal disease it has no advantage over other methods of treatment; (3) In a certain few cases where there is probably a soft exudate near the isthmus it may be regarded as of some value.

Suppuration of the Labyrinth.—Hinsberg[28] deals with this subject at some length, compiles isolated instances from various sources, and adds his own valuable experience. He presumes that infection of the labyrinth from the middle ear is only possible through a perforation of the labyrinth wall. He refers to perforations of traumatic origin—fracture of base of skull, the entrance of sharp bodies, such as knitting needles, accidental or intentional, injuries during operation, etc., but regards the most frequent cause as middle-ear suppuration, and states that such destructive processes are certainly more common than they are supposed to be. He finds that in suppurative inflammation of the middle ear, when the labyrinth is involved, the infection enters oftenest by fistula in the horizontal semi-circular canal and by the fenestra ovalis, rarely by fistula in the other semi-circular canals or f. rotunda, and not often by fistula on the promontory. Taken all over, Hinsberg thinks that suppuration of the labyrinth rarely complicates acute otitis media, but very commonly chronic otitis media. In this paper a section is devoted to the pathological anatomy of suppuration of the labyrinth, the chief points of which are, that the whole labyrinth may be destroyed, or that the destructive process may be very slight and only discernible microscopically; that the destructive process may be confined to one section of the labyrinth. In slight cases the exudation may quickly ossify; in bad cases the whole frame of the cochlea may be exfoliated. When extension from the labyrinth to the cranial cavity takes place, it does so oftenest through the internal auditory meatus. Meningitis, or brain abscess, and early cerebellar abscesses, have been reported as resulting from labyrinth suppuration.

The symptoms of labyrinth suppuration are then dealt with, the most characteristic being those due to irritation or annihilation of the labyrinth. Mere irritation causes vertigo and nystagmus; destruction causes deafness, lack of balance, or both, according

as the cochlea or semi-circular canals are affected. The course and termination of these cases are then treated. About half the cases die, and much the commonest cause of death is meningitis. An important statement, which has a bearing on our present tendency to do the radical operation in middle-ear suppuration, is that "it cannot be doubted that operations are sometimes responsible for the extension of latent suppurations of the labyrinth into the cranial cavity."

Hinsberg next treats of the diagnosis of labyrinth suppuration. Exploratory operations may be necessary in order to trace the paths of infection, otherwise the diagnosis consists in the differentiation from brain complications. He then quotes Jansen's indications for operations in the labyrinth, *viz* :—

(1,) Opening of the labyrinth is allowed in all cases of *severe* labyrinth symptoms ; it is *necessary* where the conditions found in the middle ear (in radical operation) do not sufficiently account for these severe symptoms.

(2,) In cases with less severe labyrinth symptoms, but with labyrinth fistula, where the suspected retention of pus is not found in or on the mastoid bone.

(3,) In cases with labyrinth symptoms, where the presence of a cerebellar or large extra-dural abscess is probable.

(4,) In cases of fistula in semi-circular canals, with symptoms of meningeal irritation.

Hinsberg considers Jansen's indications incomplete, and states that whenever labyrinth suppuration demands operation the cochlea should be opened, for it either is or will become infected.

Finally he gives the following technique of the operations on the labyrinth : (1) Radical operation : the posterior wall (" facial spur ") is removed sufficiently to expose the region of the foramen ovale ; (2) Opening of the foramen ovale, and then (if opening of the cochlea is intended) removal of the promontory ; (3) Introduction of the probe through the oval window, and under its guidance opening of the vestibule from the horizontal canal if possible along its anterior crus or, under difficult anatomical conditions, from behind. A very fine electric burr is used in preference to the chisel.

Injuries of Labyrinth.—Rohrer[29] records a case of concussion of the labyrinth by shock of a high potential current. The current was of 250 volts and 40-45 ampères. The man slipped on an electric crane and seized a conducting cable cord, where he had to remain for five minutes, and nearly died. The

immediate symptoms were headache and giddiness, the latter lasting for three or four weeks. Loss of appetite and an acute rhino-pharyngitis followed, and every morning epistaxis appeared for several minutes ; there was only slight loss of hearing. The treatment consisted of inflation, catheterization, Delstanche's rarefactor, application of a feeble constant current (5-7 milliampères) and galvano-caustic puncture over both mastoids.

Middle-Ear Catarrhs and Sclerosis.—Schwabach[30] contributes an article on the therapeutic value of vibratory massage of the drum-head. He criticizes the results of this treatment in the hands of Breitung, Ostmann, Zaalberg, etc., and then appends his own results derived from the treatment of 173 cases, 70 of one-sided and 103 of double-sided affections of the auditory organ—276 affected ears. He classifies these cases as follows : (1) Sclerosis ; (2) Simple chronic middle-ear catarrh ; (3) Sub-acute middle-ear catarrh ; (4) Cases of influenza, complicated with acute simple or purulent middle-ear inflammations that had run their course ; (5) Cases of sequelæ of middle-ear suppuration—dry perforations, cicatrices, adhesions, etc.

The results were : Cases of sclerosis—improvement in hearing in 4·9 per cent. ; cure of subjective noises in 28·3 per cent. Simple chronic middle-ear catarrh—improvement in hearing in 39·1 per cent ; improvement in subjective noises in 45·7 per cent. Sub-acute middle-ear catarrh—permanent improvement in 44 per cent. Influenza cases (recently recovered from an acute middle-ear inflammation)—improvement in hearing in 66·6 per cent ; improvement in subjective noises in 54·5 per cent. Sequelæ of chronic suppuration of the middle ear—complete recovery or great diminution of subjective noises in 91·6 per cent ; essential improvement in hearing in 55 per cent.

Hæmorrhage after Myringotomy, due to Hæmophilia.—Tomka Samu[31] records a case of bleeding from the ear in hæmophilia which followed a week after myringotomy had been performed for an acute middle-ear inflammation. The bleeding lasted for eight days, and threatened to end fatally, but ceased on the ninth day quite unexpectedly. The patient was only two and a half months old, and after the cessation of the bleeding, got well in every respect within a month. Hot and cold syringing and plugging failed to stop the bleeding.

Use of Local Anæsthetics.—A case of poisoning from anilin oil used in the ear is recorded by Homer Dupuy.[32] After five hourly instillations of 15 drops of a 15-grain to the ounce solution

the patient, a girl of seventeen, became drowsy, suddenly cried out, lost consciousness, became blue in the face, and had a cold skin, with profuse perspiration. The patient recovered, but was in danger for twenty-four hours. Dupuy still uses the mixture as a local anæsthetic in the ear, but would not put such a poisonous mixture in the hands of a patient.

Ellett[33] recommends for local anæsthesia in the ear a mixture of equal parts of **Cocaine Hydrochlorate, Menthol,** and **Carbolic Acid** applied on a cotton tip previous to opening the tympanic membrane in the posterior portion. Ellett thinks the carbolic acid is the most, and cocaine the least, anæsthetic element of the mixture.

REFERENCES.—[1]*Amer. Jour. Med. Sci.* Dec. 1901 ; [2]*N. Y. Med. Jour.* Nov. 1901 ; [3]*Arch. Otol.* vol. xxxi, p. 181 ; [4]*Ibid.* vol. xxxi, p. 237 ; [5]*Glasg. Med. Jour.* July and Aug. 1902 , [6]*Amer. Jour. Med. Sci.* May, 1902 ; [7]*Lancet*, Sept. 20, 1902 ; [8]*Laryngoscope*, Nov. 1900 ; [9]*Med. Press*, May 14, 1902 ; [10]*Jour. Laryng.* Nov. 1901 ; [11]*Ibid.* Nov. 1901 ; [12]*Arch. Otol.* vol. xxx, p. 1 ; [13]*Ibid.* p. 30 ; [14]*Ibid.* p. 85 ; [15]*Ibid.* p. 96 ; [16]*Ibid.* p. 127 ; [17]*Ibid.* p. 179 ; [18]*Ibid.* p. 291 ; [19]*Ibid.* p. 326 ; [20]*Ibid.* p. 328 ; [21]*Ibid.* p. 474 and vol. xxxi, p. 99 ; [22]*Ibid.* vol. xxx, p. 482 ; [23]*Brit. Med. Jour.* Aug. 30, 1902 ; [24]*Ibid*, March 22, 1902; [25]*Arch. Otol.* vol. xxx, p. 73 ; [26]*Jour. Laryng.* Nov. 1901 ; [27]*Arch. Otol.* vol. xxxi, p. 295 ; [28]*Arch. Otol.* vol. xxxi, pp. 112 & 161 ; [29]*Jour. Laryng.* Nov. 1901 ; [30]*Arch. Otol.* vol. xxx, p. 283 ; [31]*Med. Press*, Feb. 26, 1902 ; [32]*Med. Rec.* Nov. 23, 1901 ; [33]*Ther. Gaz.* April, 1902 (quoting *Journal Amer. Med. Assocn.* Dec. 28, 1901).

ECLAMPSIA. (See "Puerperal Eclampsia.")

ECZEMA. *Norman Walker, M.D.*

There is nothing very new to report in connection with eczema. The discussion at the International Medical Congress was reported in last year's *Annual.*

Tommasoli[1] endeavours to take us back to the old uric acid theory, and argues that eczema is due to the accumulation of uric acid or its products in the blood and tissues. He admits that direct proof is at present wanting ; and the fact that hundreds of cases of eczema occur in otherwise healthy people is strong evidence against his theory. Statements such as that "children suffering from eczema are generally born of arthritic or lymphatic parents," and "such children are usually of a blonde lymphatic type" are simply nonsense, and we cannot agree with Mr. Marshall that Tommasoli's view is the "most rational which has appeared lately, and stands out as an oasis in the vast desert of parasitic literature."

Meynet[2] has investigated cases with a view to finding additional evidence in support of the proposition that eczema is due to internal causes. Investigations with a view to finding evidence are usually successful, and so Meynet found hypoacidity in the gastric juices. In many instances there was dilatation of the stomach, and he also found excess of lactic, butyric, and acetic acids. He would probably have found the same if he had examined an equal number of cases taken at random, without eczema.

Kingsbury[3] regards the nervous system as an important etiological factor, and classifies the neurotic elements acting by reflex action as gastro-intestinal, sexual, and local nerve irritation. He says that perhaps dentition never produced a true eczema, but is evidently of opinion that it has a great deal to do with it. But surely to ascribe eczema in a breast-fed infant to the consumption of tea by the mother is a little far-fetched.

Kromayer[4] discusses the subject of treatment under two heads: First, sedative; second, the removal of the chronic tissue changes, and the escharotic treatment of the acutely inflamed parts. This communication chiefly deals with the last. He has had good results with **Caustic Potash,** but points out the difficulty of choosing the right time and the right strength of the application. He believes that **Lenigallol,** a triacetate of pyrogallic acid, is as useful, without the risks. It is applied as a 20 per cent paste, produces no irritation, and the action is mainly superficial. As he states that it is useless in impetigo, sycosis, and some other ailments, and as Kromayer is an extremely accurate observer, it is evidently a remedy which is well worth a trial.

Sherwell[5] pleads for more consideration for the old traditions. He has great respect for the old practice of purgation. But another old tradition he throws aside, *viz.*, abstinence from water. In his opinion all effete matter and secretion should be removed once a day at least. Cleansing with soap and water is beneficial, and as æsthetical as beneficial. The individual should be treated before all in the disease. Most drugs used in dermatological therapy, from sulphur to arsenic, are abused. All may be said to be good, when mixed, like the artist's colours, with brains. Almost all pharmaceutical preparations for topical use are too strong. Ointments are often rancid in spite of benzoin. It is far easier to advance in strength than to recede. It is far from being a fact that vaseline and glycerin

are always and under any circumstances soothing to the skin. Even when of the purest quality, vaseline is more or less of an irritant to 10 per cent of the community. Glycerin appears to make the skin smoother, but tends in the long run to make it harsher and more irritable.

Brocq[6] gives characteristically French instructions as to the treatment of eczema of the upper lip. There are three different ointments, a lotion, and spirits of camphor to be applied to the inflamed part, so that altogether the patient has five different remedies to apply. Our experience is that eczema limited to the upper lip is produced by the irritation of nasal discharge, and that until that is treated the selection of one or other local application is a matter of little moment.

Treatment.[7]—In treatment, it must be remembered that while an agent which will destroy bacteria in a tube will also do so in the living tissue, the agent to be curative must not be irritative or destructive to the tissues. Most acids are irritating, so that alkaline ones should be chosen. The exudation is markedly acid, and an alkaline internal treatment is of old standing.

Dr. Ohmann-Dumesnil tells us that the ideal antiseptic is one whose alkalinity is almost that of the blood. It must be bactericidal and non-irritating. He claims to have discovered the ideal antiseptic in a substance shortly called by the name of **Germiletum,** whose formula is : $HBF_4 + BOH\ (OC_6H_4COOH)_2 + BOH\ \ (OC_6H_4COOH_2) + C_3H_5BO_3 + CH_2O + C_{18}H_{14}O + KMnO_4 + C_{10}H_{20}O + C_{24}H_{28}N_2Cl$. He has found it most useful in all forms of catarrh. It kills the bacteria *in situ,* and he has found it useful in many skin diseases, especially eczema.

References.—[1]*Ann. de Derm. et de Syph.* July, 1900 ; *Treatment,* March, 1901 ; [2]*Thése de Lyon,* 1901 ; [3]*Med. Rec.* Jan. 4, 1902 ; [4]*Münch. Med. Woch.* Feb 5, 1901 ; [5]*Med. Rec.* March 15, 1902 ; [6]*Jour de Méd. de Paris,* Feb 18, 1900 ; [7]*St Louis Med. and Surg. Jour.* Jan. 1902.

EGYPT (Diseases of). *F. M. Sandwith, M.D., F.R.C.P., Cairo.*

Enteric fever is extremely rare among all natives of Egypt, so that only six cases have been found during thirteen years, among all hospital patients. The disease is comparatively rare among Levantines and the Latin races, but is extremely frequent among English soldiers, who are, of course, of the most likely age, eighteen to twenty-five. It is also often met with among

young English men and women, Americans, Germans, and Swiss, and can generally be traced to insanitary dwellings.

Typhus occurs every spring, and occasionally throughout the summer, in native towns and villages. The disease is often not recognized in consequence of the difficulty of observing the eruption on a coloured skin. The peasants, for the sake of warmth, are apt to crowd themselves and their animals into their huts during the early months of the year, and so predispose to the disease. As March and April are warmer, men and animals commence again to sleep out of doors, ventilation windows are unplugged, and a sufficiency of cubic space is restored, permitting the disease to die out. Associated with these localized epidemics is almost invariably :—

Relapsing fever.—It was originally discovered in Egypt by Griesinger in 1851, completely forgotten by the present generation, and rediscovered by the writer in 1884, since when many small epidemics and some sporadic cases have been seen yearly. The disease seems to be fostered by the same conditions as typhus. Famine fever is a bad name for it, but some insufficiency in the *quality* of the food is partly responsible, and this may account for the disease being only found among peasants, prisoners, and occasional doctors and nurses in attendance upon them. The pathognomonic *spirochætæ* can always be found during an epidemic.

Simple continued fever is a common term used in all military hospitals, and loosely made to cover all cases of febricula caused by exposure to sun, and to cold, and by alcoholic or any other imprudence. The disease is not met with to any extent among other classes resident in Egypt, or among natives.

Small-pox was formerly a terrible scourge among the Egpytians, but is now comparatively rare, because modern Egyptians have great belief in vaccination. The Nubians on the other hand still practise inoculation, and do everything in their power to catch small-pox in childhood, believing that every one must have it, and therefore it is more convenient to get it over early in life.. Europeans insufficiently protected by vaccination occasionally get the disease.

Measles occurs in epidemics, causing a great mortality from broncho-pneumonia among the children. The disease would seem to be not endemic.

Scarlet fever is very rare, and has never been seen by the writer among the natives. It is said, however, to exist. Among

the English residents a dozen sporadic cases have been seen in ten years, perhaps, communicated from England by post. Also a localized epidemic occurred in 1900 among the English children at the Citadel barracks of Cairo.

Chicken-pox is very rare, but has been seen among natives, who invariably confuse it with small-pox.

Yellow fever is unknown in Egypt. The cases described under that name by Larrey and others at the beginning of the 19th century, were almost certainly relapsing fever, or bilious typhoid.

Dengue has been known in Egypt since 1779. It occurs as epidemic or sporadic in the damp autumn months, and dies out in December at the first approach of cold. The disease is much milder than as seen in India and America, less rheumatic in character and less liable to relapses. In 1887 there was a certain epidemic, unattended by loss of life, and this was confounded by some with scarlatina in consequence of roseolar eruption and free desquamation.

Influenza has been introduced into Egypt from Europe every winter since 1889. Some of the epidemics have been serious, compelling closure of some of the schools, but no deaths have occurred among the Europeans, which looks as if the climate were unfavourable to the bacilli. Among the natives there was an increased mortality during the third outbreak, chiefly in consequence of uncared-for broncho-pneumonia. The nervous system of natives seemed little affected. During the early months of 1892, there was a widely-spread, but not dangerous outbreak among the peasants and military in Upper Egypt, though curiously enough the European tourists and health-seekers at Luxor were passed over by the epidemic. Possibly they had become immune by recent attacks. No one acquainted with both dengue and influenza is likely to confuse the two diseases, though isolated cases of either may be difficult to diagnose. I once had a patient who caught influenza while convalescing from dengue.

Malaria is scarce in Egypt as compared to many parts of India, which would seem to have most of the same physical conditions. It is practically never seen among Europeans unless they have previously suffered from the disease in India or elsewhere, and have committed some imprudence, such as sleeping on marshy ground. Among natives of middle and lower Egypt there is a good deal of intermittent fever, occurring among those who sleep habitually upon the ground near ponds,

or below the level of the Nile flood. Remittent fever as seen in Turkey, is not known in Egypt. There is a variety of malaria occasionally met with among Europeans, and not usually described by authors, an intermittent form occurring at intervals of a week, ten days, a fortnight, or even more. This form, which has much clinical resemblance to relapsing fever, is also met with in Servia, Bulgaria, and Syria, the longest interval as yet noted being five weeks. Some of the relapses have occurred in spite of **Quinine** and removal to England.

Of late years the plasmodium of simple tertian fever has often been found in Cairo, very rarely among Cairenes, but among peasants from lower Egypt, strangers from Cyprus and Syria, and those returning from unhealthy parts of the Soudan and Central Africa. The æstivo-autumnal form is rare in Egypt, and the quartan type I have only met once, in a Hindu recently arrived from India. Malaria is endemic at Ismailia, where the anopheles mosquito exists. Different varieties of *anopheles* have also been found at Helouan, Ghizeh, Fayoun, Wady el Natron, and many places in the Soudan, and one has recently been named by the British Museum, *anopheles pharaohensis*. The culex mosquito exists in all cultivated parts of Egypt.

Bilious typhoid, described by Griesinger in 1851, is perhaps identical with Weil's disease as seen in Europe. I have seen a few sporadic cases in Cairo, but in Alexandria it is well known, and believed to be highly infectious. Though it greatly resembles relapsing fever, the spirochœtæ have never been found in the blood.

Mediterranean fever is not endemic in Egypt, but sporadic cases occur from time to time on the sea coast in Alexandria, Port Said, and Suez. Moreover, at least one case has been found in a native of Cairo, whose blood answered well to the Widal test of this fever. Several imported cases have been met with among English patients, who contracted the disease while travelling from Naples, Palermo, or Syracuse. Also several British soldiers have manifested it in Cairo when newly arrived from Malta or Gibraltar.

Plague was well known in Egypt from the beginning of the Christian era until 1841, when it disappeared until the last few years, when it was brought to Egypt by pilgrims returning from Mecca. It lately established itself in several insanitary towns, but has invariably yielded to prolonged and persistent sanitary measures. The three varieties, bubonic, septicæmic, and pneu-

monic, have all been met with, by far the most common being the first. The plague bacillus has been found in the rats of many infected localities.

Cholera has occurred in an epidemic form eight times since 1831, the latest outbreaks being in 1895-6, and in 1902. If the local water supply becomes infected, there are hundreds of cases during the summer months ; if, however, the water can be kept uncontaminated by sanitary efforts, or if new artesian wells can be sunk, there are only a few dropping cases in any one spot. The natives, like other orientals, do not easily lend themselves to energetic measures for fighting the disease. All epidemics can be traced to pilgrims returning from Mecca ; they break out usually in Egypt in May or June, and come to an end before December, when the Nile is at its height and an abundance of fresh water can be provided. They have seldom spread south of Egypt.

Hydrophobia is often met with in the hospital wards, though all individuals now bitten by dogs or wolves are sent by the Government to Cairo to undergo treatment at the Anti-rabic Institute, until it is definitely ascertained that the animal was not rabid. The pariah dogs who used to haunt every town and village are also periodically destroyed by the police, but more radical measures are obviously necessary.

Pellagra is one of the chief curses of lower Egypt, due to eating diseased maize. In upper Egypt and the Soudan, where equally poor peasants live on millet instead of maize, the disease hardly exists. The typical skin eruption can only be seen in the spring and autumn months, because exposure to the sun's rays is an essential factor, but the changes in the digestive system, spinal cord, and brain, can be seen in any old standing case. Melancholia is produced, but it is not until the patients become demented that they are transferred to the Lunatic Asylum. As in other countries, the disease is often complicated by ankylostomiasis. By examining peasants working in the fields, I have found in some villages that half the adult men have early symptoms of pellagra.

Leprosy was apparently endemic for some centuries before Christ, and though modern Egyptians profess to be afraid of its contagion, they do not recognize the beggars and others who may often be seen in the streets. The Government has never attempted to isolate lepers, and no treatment has as yet been of distinct use. Recent researches have not confirmed the in-

fluence of heredity, contagion, or of the fish theory. The tubercular form is commoner than the anæsthetic. Leprosy is not seen among Europeans, excepting Greeks, who have contracted it in the Ægean Islands. *Leucoderma*, especially among negroes, is still sometimes confounded with leprosy.

The only cured case of leprosy I have ever seen occurred after three years' treatment by subcutaneous injections of sterilised **Chaulmoogra Oil.**

Scrofula is very common among natives, as might be expected from a race which commits every dietetic and hygienic error. The lymphatic glands of the neck, and to a smaller extent of axilla and groin, are greatly enlarged in a number of young Egyptians, girls providing twice as many patients as boys. The glands, if not excised, become caseous and suppurate, and resemble closely the caseous mesenterian and retro-peritoneal glands seen at autopsies of abdominal tubercle, yet in only about 10 per cent of the gland cases can evidence of tubercle be found.

Gout is not known among Egyptians. It was seen once in a Turkish pacha, who had been educated in England, and had an alcoholic reputation.

Rheumatism in the acute articular form is extremely rare, but has been seen once in a Jew, and twice in English patients, who had already had previous attacks. Rheumatic pains in muscles are extremely common among natives in the winter, when ill-clad and exposed to the cold at night. Rheumatoid arthritis is so rare that only six cases of it have been seen among natives.

Diphtheria is very common among all classes of natives, whose children are exposed by day and night to emanations from unprotected cesspools beneath their houses, and to ground floors communicating directly with shifting sub-soil water from the Nile. European residents, if equally careless about their homes, suffer also, but not to an alarming extent.

Respiratory diseases are fairly absent from Upper Egypt, but bronchitis and pneumonia are by no means uncommon during the two winter months in Cairo and the Delta among natives exposed to night air. Asthma is very rare, and only exists among those who have asthma everywhere excepting at the sea. The climate would seem, however, not to be a permanent cure for the disease, for sufferers who reside in Cairo in order to secure immunity, become asthmatic again when they return to Europe, and even when they visit the sea coast of Egypt.

Phthisis is extremely common among the negro and Nubian races in Cairo and the Delta, and very rapidly fatal, for 69 per cent of hospital cases died after a stay in hospital from twelve to seventeen days. The Egyptian cases are much less numerous, and only 46 per cent of them died, after an illness of more than a year's duration, while the negroes succumb seven months after the first symptoms. The analysis of a hundred negro autopsies shows that more than three-quarters had tubercle in their lungs, intestines, mesenteric and bronchial glands. Nearly one-half had also tubercle of spleen, one third of liver, one fourth of pleura and peritoneum, and one fifth had tubercle of kidney. Among surgical cases there are always large numbers of *necrosis* and *caries* of bones, dependent upon tubercle, and, curiously enough, a much smaller proportion of tubercular joints. Besides these, there are considerable numbers of *abscesses* and *ulcers*. Not only are most of these patients Soudanese or Nubians, but the impossibility of curing them by operation is directly in proportion to their depth of colour. Amyloid degeneration is never found at autopsies. Hæmoptysis is a rare symptom among all natives, except at the very beginning of the illness. The climate, so fatal to southern strangers, proves more than kind to Europeans, who use it as a winter resort.

Lupus of face and limbs is common among natives.

Dysentery is extremely common in Egypt, caused partly by cold nights after warm days, by an entire absence of anything warmer than cotton clothing, by injudicious dieting of children and sick people, and by drinking unfiltered water. The disease is, however, seldom seen among Europeans. Acute dysentery is cured without much difficulty, but chronic cases defy all treatment, and by the extent of their ragged, sloughing ulcers after death in the whole length of the great intestine, make one despair of discovering any cure. My routine treatment is **Sulphate** of **Magnesia,** followed by **Bismuth** by the mouth, and two pints enemata of **Sulphate of Copper** ($\frac{1}{1000}$) with starch and opium.

Abscess of liver is often met with among natives, who have invariably some previous history of alcoholic excess. The orthodox Mussulman drinks but water, and though he may often get a hepatic enlargement from good food and no exercise, he is usually spared hepatitis and abscess. As a rule the patient has only one abscess, occasionally two, and very rarely indeed there

are several. The disease may recur in a chronic drunkard after the successful healing of the first abscess. Women enjoy a great immunity; so far, abscess has been met by the writer in only two cases, *viz.*, a negress, in whom it was not known till after death, and a German lady who died after operation. In both cases the abscess was very small, and there was a previous history of intemperance. European young men of intemperate habits, and exposed to much summer heat, are liable to the disease, and often suffer from it. Many liver abscesses are not preceded by dysentery, but in those that are, *amœbæ* are found.

Syphilis is very rife and very insufficiently treated, so that sequelæ are very common among natives of all classes. Apoplexy and cerebral tumours with succeeding hemiplegia are of frequent occurrence, besides locomotor ataxy and other spinal diseases. Hereditary syphilis is of course very common, helps to swell the in ant mortality under one year, affects the survivors with rickets, and later on with enlarged livers and spleens, sometimes occasioning ascites.

Sunstroke is rare in the dry air of Egypt proper, but often met with in Nubia and at Suakin, where there is great humidity as well as heat.

Fungus foot, madura foot, or *mycetoma,* believed to be peculiar to India and Italy, has recently been reported from Cairo, where twelve cases of the disease have been seen, corresponding in every way to the Indian variety. The patients were mostly men, fellaheen or negroes, and only included one case of the black fungus. No cause for the disease could be discovered. The tumours seem to resemble actinomycosis very rarely. The disease is quite common in some parts of the Soudan.

Beri-beri has not yet been seen in Egypt.

Elephantiasis is endemic, and most commonly seen in natives living at the Rosetta and Damietta mouths of the Nile. The drinking water of these towns has for several generations been provided by cisterns, for use when the Nile is below sea-level, and it is most probable that the *filaria* has lived in the cisterns. Women with one arm affected are occasionally met with, but the bulk of cases are in men, with one or both legs or the scrotum attacked.

Acromegaly has been noted four times in Cairo.

Ankylostomum duodenale is a well-known cause of Egyptian anæmia among men. It is more rarely found among women and children. Nearly all the patients are fellaheen from various

villages in Upper and Lower Egypt, but some few are gardeners, scavengers, or mason's labourers from Cairo. The one essential factor to be present is that their occupation shall compel them to work in earth with their hands. The embryo is doubtless introduced into the human body, not by drinking water, but direct from the earth with the food by unwashed hands. The chief symptoms of the anæmia which results from this parasite are giddiness, headache, mental weakness, pains in knees and limbs, epigastric pulsation, dyspnœa, and in later stages, diarrhœa and slight dropsy. The symptoms are so gradual that it is usually not until two years from the commencement that the patient comes to hospital. Before that he has perhaps applied a red-hot iron to the epigastrium to relieve an oppression at the pit of the stomach. Careful search of the evacuations will show eggs, but not the adult worm. After a brisk purgative and careful washing of the fæcal matter, worms can be found. **Thymol** in large doses is the only drug yet discovered to expel all the worms, and usually some three or more doses are required. The anæmia if not treated will cause the patient's death. Large doses of iron are absorbed easily, and the microscope in a month shows a great improvement in the character of the blood. The number of worms varies from one or two to 500 or more. Their favourite seat is the junction of duodenum and jejunum, and they cling so tightly to the intestinal mucous membrane that they cannot be washed off by a stream of water. They are not found in the stomach, and seldom as low as the ileum. At the autopsies of fatal cases all organs have an extremely pale and bloodless appearance. The red blood corpuscles often diminish to one fifth of their normal number. The patients are unaware that they harbour entozoa, and if they confess to the presence of worms, some other variety will be found in addition.

Distoma hæmatobium has its home in Egypt, but we may seriously doubt now-a-days whether one out of every three corpses contains the parasite, as used to be stated. It is rare in women. It is well known that patients seldom come for treatment until it has existed for years. Besides its presence in portal and mesenteric veins, and its well-known changes in the bladder, ureters and kidneys, it is found in the rectum, where it produces small ulcers and papillomatous growths, causing symptoms occasionally mistaken for dysentery. The bladder may be very little thickened by the consequent cystitis, or may have walls as thick as two inches. The eggs and shreds

in the bladder are the most fruitful cause of calculi in Egypt. Hæmaturia is the chief symptom, and may continue for years without seriously affecting the patient. The eggs can be found in the urinary deposit, and sometimes in the evacuations. After death the parasite will be found in the portal blood, and the eggs in the bladder, and perhaps in the ureter and kidney. They have also been found in the liver, spleen, lungs, intestines, vulva, uterus, and in external fistulæ and warts. After calculi, urinary fistulæ are the most troublesome complication. Some temporary relief is afforded by cystotomy in severe cases. The extract of **Male Fern** in doses of 15 grains three times a day is the only drug which affects the parasite for a time. The disease has occurred among Europeans whose drinking water was polluted.

Ascaris lumbricoides is the commonest of the entozoa in Egypt, and is met with every day among autopsies of patients to whom **Santonin** has not been administered. In an Egyptian boy, aged seven, I once found thirty-two of them at an autopsy, *viz.*, fourteen in his stomach, twelve in the jejunum, three in the ileum, one in the colon, one in his œsophagus, and one was trying to enter an Eustachian tube ! The boring habits of these worms are not quite understood in England, though it is recognized that a tuberculous ulcer of the intestine can be perforated by them. This has been seen several times, and once I found an ascaris who had died in the very act of boring his way through such an ulcer into the peritoneal cavity. An Egyptian woman once died of local peritonitis, somewhat to our surprise, after ovariotomy. The operation wound and its vicinity were perfectly healthy, but the peritonitis had been caused by the escape of an ascaris into another part of the peritoneal cavity. This necessitated the routine administration of **Santonin** to patients about to undergo abdominal operations.

Tænia mediocanellata is very common, because the poorer Egyptians eat any beef, healthy or not, which they can find. It is even difficult to prevent their eating the carcases of animals affected by rinderpest. **Ext. Filicis M.** in doses of one drachm, after fasting from all solids for twenty-four hours, will bring away the head. Smaller doses are useless, and larger ones are inconveniently dangerous.

Tænia solium and *trichina* are very rare, because pork is only eaten by a few of the Christian residents.

Oxyuris vermicularis and the *tricocephalus* are extremely common among hospital patients.

Filaria sanguinis hominis can be found in the urine and night-blood of a few Egyptians suffering from chyluria, and its life history has been traced through the female mosquito. It can also be found in the blood during acute attacks of elephantiasis.

Negro lethargy has not yet been noted in Egypt or the Soudan.

Dracunculus medinensis is not met with among Egyptians, but is common amongst Nubians and Soudanese, who have brought the parasite with them to Egypt. It is very common in certain districts of the Soudan, where the worm is found attempting to escape about the knee, calf, or ankle of the patient. When found above the knee, such as in the back, it is generally a dead encysted worm. After one of the engagements in the Soudan, a surgeon while amputating high up in the thigh cut through a worm which was evidently making its way downwards towards the foot.

Distoma heterophyes is often found in the fæces of hospital patients, but is not known to do any harm.

Echinococcus is rare, because the natives regarding the dog as an unclean animal, do not live upon terms of intimacy with him. Hydatids have, however, been found three or four times in the post-mortem room, and on two occasions an abscess of liver proved to be a suppurating hydatid.

Scabies is endemic in all parts of Egypt, and in chronic cases gives rise to many forms of skin disease. The Bedouins and others associated with camels get a special form of it from them.

Favus is one of the commonest diseases present in Egyptian children, and is very intractable to treatment. **Epilation,** or the old French method of tearing out the hair by pitch plasters, are the usual cures, but in hospitals we use **Starch Poultices** and **Naphthol Ointment.** The heads of all natives are constantly kept covered, but it is very common to see adults almost completely bald in consequence of favus during childhood.

Scurvy is rare among Egyptians, who live a great deal upon vegetables, but it is often seen among those who have come from the deserts of Arabia or the Soudan.

Diabetes is distinctly common among Egyptians, perhaps from their diet being mostly non-nitrogenous.

Chlorosis is confined to the women—Mussulman, Christian and Jew—who lead a purely inactive life within doors. As most of them have their faces covered when they are driving or walking, they breathe expired air, which must be an additional cause of anæmia. Negresses, however, are less liable to the disease

than the white or yellow inhabitants of towns. The peasant women working in the fields have a perfect ruddy hue.

Goitre is not very uncommon among Egyptians, but true cretinism does not seem to exist.

Cancrum oris is by no means rare among feeble children of the poorest classes.

Mumps occurs very rarely and sporadically.

Aneurysm is extremely rare among natives, but has been met with in the thoracic and abdominal aorta and in the popliteal artery.

Hæmorrhoids are so common in Egypt that many adults wear finger rings and other charms as a fancied protection from them.

Vesico-vaginal and recto-vaginal fistulæ are very common among Egyptians and negresses, in consequence of unduly protracted labour, and the unskilful forceps operations of native midwives.

Kidney disease is as common in the parenchymatous form, as the interstitial variety is rare among the living; but judging by *post-mortems*, many of the former must become granular before death.

Vesical calculus is extremely rare among negroes, but very common among Egyptian men and boys, several cases having been met with under two years of age. The nucleus is generally due to the eggs of distoma hæmatobium.

Hydrocele is one of the commonest maladies in Egypt.

Cancer of the breast and uterus is far from uncommon, though earlier writers seem not to have found it so.

Hysteria of both sexes is common among Egyptians and negroes, it being very frequent for a patient to believe that he or she is possessed by a religious sheikh, who comes and goes at stated intervals.

Chorea would seem to be very rare in Egypt, and has never been seen among the blacks.

Epilepsy is often met with. The natives firmly believe that epileptics are possessed by a devil.

Rickets is extremely common among the lower class of Egyptians. The most obvious causes are, syphilitic or scrofulous parents, lactation prolonged to two years or more, ill ventilation, and other hygienic errors. It must also be remembered that peasant girls often marry directly they reach puberty.

Ophthalmia is very common among pure Egyptians, and less common among Jews, Turks, Bedouins, Nubians, and negroes.

This seems to be a question of dirt, for the Copts and Mussulmen believe that eyes should very seldom be washed, and never for eight days after birth. No efforts are made to prevent contagion by flies or any other cause. However, travellers are unanimous in declaring that people blind of one or both eyes are now less frequently seen in the streets than was the case twenty years ago. Europeans do not suffer from the granular form, but from catarrhal ophthalmia, due to chill, and most common in the autumn months, when the weather is at its dampest. Catarrh may also result from not carefully washing the eyes after being exposed to dust.

EMPYEMA (Surgical treatment of). *Keith Monsarrat, F.R.C.S.E.*

Fatalities following the washing out of empyema cavities are not uncommon. Some years ago the writer came in contact with the following case: A woman, about forty years of age, had a chronic sinus in the left side of the chest, the sequel to an operation for empyema about six months previously. This was syringed out daily by the sister of the ward with a weak solution of iodine. One morning while this was being done, the patient being in a sitting posture, she suddenly fell back. When seen a few seconds later both cardiac and respiratory action were absent, and stimulation was quite ineffective. *Post-mortem* a sinus about 6 inches long leading into a small cavity was found, both lined by scar tissue of almost cartilaginous toughness, and no explanation of the syncope was forthcoming.

Mr. Stephen Paget[1] relates a case of empyema on the left side in a man aged thirty-eight. On the nineteenth day after operation the cavity was washed out; when this was finished, Mr. Paget began to dress the wound; at this moment the man shivered slightly, and immediately became unconscious; the general condition was that of an epileptic seizure; he never recovered consciousness, and died about eighteen hours after the beginning of the attack. The *post-mortem* examination showed nothing—no hæmorrhage, no thrombus, no embolus—nothing but a slight congestion of the vessels at the base of the brain.

No available explanation of these reflex seizures is satisfactory. Mr. Paget says, "One talks of pressure on peripheral nerve-ends, and reflex convulsions, and inhibition of nerve centres; but all such talk is very vague." He lays down the rule that one should never wash out an empyema unless the discharge is fœtid and the patient is suffering from septic absorption. One

would be right in adding to this rule, that in no case where irrigation is painful or causes any kind of distress or reflex disturbance should it be continued.

The operation of **Thoracoplasty** for chronic empyema aims at fulfilling two purposes: (1) Drainage of the cavity; and (2) Approximation of its walls. Mignon[2] points out the necessity of varying the operation according to the size and position of the cavity. He divides the cavities into: (1) Those with their long axes transverse; (2) Those with their long axes vertical; and (3) Those of a more or less pyramidal shape. For the first a rectangular flap of all the soft parts down to the ribs is turned upwards, and a portion of each rib corresponding to the outer wall of the cavity resected; the cavity is then thoroughly cleaned out, but not scraped. The second variety of cavity is more easily treated with success when situated laterally. An incision in the mid-axillary line exposes the ribs, from each of which a portion is removed of a length equal to the width of the cavity. The anterior cavities are similarly treated, but the scapula interferes with the necessary resection when the cavity is posterior; however, by an incision corresponding to the cavity between the spinal column and the vertebral border of the scapula, about 4 cms. can be removed from the ribs near their vertebral attachment. The pyramidal-shaped cavity is difficult to treat. Mignon makes a transverse incision over the rib at the base of the cavity, and through this resects the length necessary; a vertical incision is then carried up from the centre and the soft parts thrown outwards in two triangular flaps, thus exposing the ribs above, which are resected as may be necessary. The parietal pleura is also resected over a corresponding area, and the flaps kept applied to the visceral pleura by suitable gauze pads.

In chronic empyema with complete or almost complete lung collapse, the visceral pleura may be so thickened and toughened that any further expansion of the lung is quite impossible. To meet this condition the operation of "decortication" has been performed; that is to say, the tough and thick pleural covering is stripped from the underlying lung. This is by no means always a possible proceeding; it has always been combined with thoracoplasty. The following case, reported by Picone,[3] illustrates the procedure. A woman, aged thirty-three, with a fistula resulting from an operation for empyema two years previously, was subjected to the following operation:

The ribs from the second to the eighth were resected, beginning at the mammary and extending to the posterior axillary lines. In this manner the lung was exposed, and found almost airless and closely adherent to the vertebral column. The visceral pleura was incised longitudinally and the lung partly decorticated. A copious hæmorrhage rendered it necessary to postpone any further proceeding for the time being, and the decortication was completed at a number of sittings without anæsthesia. Several cavities were opened into and curetted. A plastic operation was required to close the outer wound. The patient's condition improved greatly, but she died from tuberculous enteritis. In this case, though it is not stated, the condition appears to have been tuberculous in nature, and it is very questionable whether under these circumstances such operations are advisable. Pascale,[4] in reporting four cases of chronic empyema treated by stripping the thickened pleura with success, names the following contra-indications against the operation : (1) Where inflammatory infection has spread into the substance of the collapsed lung ; (2) When the pleural condition is of tubercular nature and the lungs are infected with the same process ; (3) When the general condition is much impaired.

References.—[1]*West Lond. Med. Jour.* July, 1902, p. 198 ; [2]*Rev. de Chir.* vol. xxii, p. 411, 1902 ; [3]*Riforma Med.* Dec. 24, 1901 ; [4]*Gaz. inter. di Med. Prat.* 1900.

EMPYEMA. *Priestley Leech, M.D., F.R.C.S.*

Resection of the Chest-wall in Fistulous Empyemata.—Jordan of Heidelberg,[1] has a good paper on the treatment of old empyemata. He draws attention to the difference between Esthlander's operation and Schede's operation. Esthlander says the principal thing is to retain the costal pleura, and he seeks to obtain the shrinking of this pleura through the removal of individual ribs, and avoids opening up the pleural cavity. Schede, on the contrary, holds that the removal of the thickened pleura (which thickening is the cause of the continuance of the empyema) is the main factor in the healing, and he attempts to cover the surface of the lung with the soft parts of the chest-wall, which have a tendency to grow together. In order to avoid error, Jordan suggests that the name thoracoplastic be allowed to lapse, that the Simon-Esthlander operation be known as multiple rib resection, and that Schede's operation should be called thorax resection. He gives notes on some 21 cases, 17 of which were pyogenic and 4 tuberculous empyemata. The

result of the primary operation in empyema is dependent on the condition of the lung. The presence of an empyema in the hollow cavity beneath the scapula favours the latency of an empyema, and it was frequently found that this cavity was the seat of the pus which kept up the fistula, and in most cases of this kind repeated operations were necessary. In these cases also Esthlander's operation is of no use, as one cannot apply it to the ribs under scapula. The prognosis of old empyemata is on the whole a bad one, owing to the social condition of the patient. Prof. Jordan's conclusions are as follows :—

(1,) In really old fistulous empyemata Schede's resection of the thorax will in most cases lead to cure.

(2,) Partial operations are no good ; the resection must be thoroughly carried out if success is to be obtained.

(3,) A sufficient and thorough recognition of the intra-thoracic relations is only possible through direct inspection and palpation.

(4,) It follows from this that the operation is best begun with an exploratory incision, resection of the two ribs adjoining the fistula along with the thickened neighbouring pleura, and the further steps depend on the results of this primary operation.

(5,) If the pulmonary pleura is thickened it must be excised, or at least split, if success is to be obtained (combination of thorax resection with decortication of the lung).

(6,) Decortication of the lung (Delorme's operation) alone is uncertain in its results.

(7,) In children, if the indications be present, thorax resection can be undertaken earlier, as a complete regeneration of the removed ribs may be expected.

(8,) This regeneration can only lead to ideal results of cure if the retracted lung can expand. The favourable time for the performance in childhood must not be neglected.

(9,) In tuberculous fistulous empyemata the chances of an operation are much less. The operation in such cases should only be undertaken in individual favourably-situated cases (small limited empyema cavity, and small lung changes, with good general health).

Boyer, of New York,[2] describes a method of treating empyema which will prevent hæmorrhage from too sudden relief of the tension. In the case quoted, simultaneously with removal of a portion of the rib and before slitting the pleura, he introduced the glass nozzle of a fountain syringe containing **Normal Saline**

Solution at 100° F the moment the cavity was opened. The solution was turned on with good pressure from a height of six feet. By an adjustment of compresses the too rapid expulsion was prevented; the saline solution gradually displaced the purulent effusion. This method seems to be based on one recommended by Prof. Levaschoff[3] for both serous and fibrinous pleurisies.

REFERENCES.—[1]*Beitrage z. klin. Chir.* Bd. 34, p. 553; [2]*New York Med. Jour.* Jan. 25, 1902; [3]*Vratch*, Dec. 8 and 20, 1901.

ENCEPHALITIS (Acute Hemorrhagic Cortical).

Graeme M. Hammond, M.D., New York.

At the last meeting of the American Neurological Association Hoffe[1] contributed an able article on acute hæmorrhagic encephalitis. The etiology of the disease of the cortex is usually bacteriological or zymotic. Either the inflammation is due to the direct invasion of the cortex of the brain by the bacteria which cause the primary disease, as, for instance, in influenza, where we have positive evidence, or in diphtheria and typhoid, where we surmise; or it is due to the peculiar zymotic agency or the ptomaines of the other acute infectious diseases, when it occurs as a complication of measles, scarlatina, etc. Trauma is a frequent cause. The brain is either bruised by concussion and then a reaction of inflammatory softening occurs, or without any fracture the bruised cortex becomes the seat of a circulatory infection; micrococci or spalt-piltze, which are circulating in the blood, are deposited and set up an inflammation in the bruised spot.

The macroscopic appearance of encephalitis is that of circumscribed areas, varying in size from a pin-head to a silver dollar, multiple and often symmetrical in distribution. These areas are most frequently met in the cortex, but are found also in the white matter of the basilar ganglion. They are bright red in colour in recent cases, but the colour changes as the blood pigment changes in colour, to a purple-brown, yellowish-brown, or yellow. The area is more succulent than the surrounding tissue, because it is infiltrated with serum, and is slightly raised above the level of the surrounding cortex. Microscopically there is a dilatation of the arterioles and capillaries, and transudation of red and white corpuscles into the surrounding tissues, and later on pigment particles, phagocytes, and an increase of the spindle cells. The ganglionic cells are affected, but only secondarily. The protoplasm becomes swollen, more translucent,

the nucleus less distinct; afterwards the cells become more opaque, and at times the protoplasm is seen to break up. There may be a total destruction of cells, again they are shrunken, become deformed, and the nucleus appears crenated. This process is interstitial.

The above processes may terminate in recovery. Far more frequently some defect in the cortex remains which is the cause of a remaining muscular paresis or of the subsequent development of epilepsy. Either scar tissue forms or else cysts are created.

The symptoms can be grouped under three heads: (1) The period of onset and development; (2) The period of focal signs and symptoms; (3) The permanent signs and remote consequences.

The general symptoms may be preceded for a day or two by headache, vertigo, *malaise;* but as a rule the onset is sudden, rarely with a chill, usually with high fever, and a rapid development of the mental symptoms, which reach a climax in from one day to a week. The mental symptoms resemble an attack of delirium tremens. There is restlessness, jactitation, sleeplessness, hallucinations both aural and ocular, together with those of general sensation. There is a constant muttering of incoherent sentences; frequently maniacal character of movements and speech, constant rambling conversation, picking at the bedclothes, and removal of imaginary insects. In the course of from two to five days the delirium gradually subsides, and increasing somnolence supervenes. The patient frequently becomes lucid at intervals, but only for brief periods. During all these days the temperature is high, the pulse rapid, and the breathing is rapid and superficial Sordes of lips and teeth are marked. In very violent cases sopor and coma set in. In milder cases improvement begins before the somnolence becomes very marked. In the state of coma there is incontinence of fæces, and both incontinence and retention of urine; and at times bed-sores. Death occurs from exhaustion. In favourable cases the symptoms gradually subside, and in two or three weeks intelligence returns. The focal symptoms, however, remain for some time longer. They may completely disappear in the course of weeks or months, or there may be permanent defects. If paresis remains it is more or less spastic in character. Contracture, with retardation in general development, is seen frequently in the cerebral palsies of children. In adults the paresis appears

as a slight weakness and awkwardness of the arm or leg, or entire side. The most serious of all the sequelæ, however, is the development of epilepsy, either Jacksonian, which is usual, or general.

In regard to treatment, the author recommends the use of **Salicylate of Sodium** in the first few days or weeks; later, **Iodide of Potassium,** and **Bichloride of Mercury.**

REFERENCE.—[1] *Jour. Nerv. and Ment. Dis.* Sept. 1902.

ENDOCARDITIS (Malignant). (See "Heart.")

ENTERIC FEVER. (See "Typhoid.")

ENTEROPTOSIS. *R. Hutchison, M.D.*

This disorder was first described by Glénard in 1885. The term literally means a falling down of the intestine, but was applied by Glénard to any condition in which there is a tendency to prolapse of one or more of the abdominal viscera, a descent of each organ separately being called by its own name with the addition of the suffix "ptosis," *e.g.*, gastroptosis, nephroptosis, hepatoptosis, splenoptosis, metroptosis, coloptosis, etc. Other writers have used the term in a different sense, but it is better to adhere to the original nomenclature of Glénard, and signify by it a general tendency for the abdominal organs to prolapse.

ETIOLOGY.—As regards the etiology of the condition, most writers (*e.g.*, Einhorn,[1] Dickinson,[2] Kellogg,[3] Bouveret,[4] Wolkow and Delitzin[5]) lay stress upon the part played by tight-lacing. That this is not the sole cause, however, is shown by the fact that enteroptosis may occur in men, and also in women who have never worn a corset. In such cases a weakened abdominal wall seems to be largely responsible for the condition, and Stiller has pointed out that many of these patients present a floating tenth rib (the "costal stigma" of Stiller). The weakness of the abdominal wall may be congenital, or result from sudden great losses of fat, or follow abrupt changes in the volume of the abdominal contents. All writers are agreed that the condition is far commoner in women than in men, and Glénard gave it as occurring in one out of every four women with digestive disturbance. Einhorn,[6] among 1912 patients, most of whom were dyspeptic, found 240 cases of enteroptosis, 20 in men and 220 in women. The majority of these were accompanied by a movable kidney, thus bearing out the saying of Trastour, "Movable kidney is the habitual satellite of enteroptosis."

Symptoms.—It is well known that enteroptosis may exist without giving rise to any symptoms whatever. In most instances, however, various morbid manifestations are encountered, though these are not always due to the enteroptosis alone, but to co-existing disorders of the digestive tract. The patient often complains of a faint feeling or a certain weakness after rising. There is frequently a feeling of considerable fatigue after slight exertion, principally after walking. In women this is accompanied by back-ache. A feeling of weight is occasionally experienced in the lower half of the abdomen, with a dragging sensation in the epigastrium. Flatulence and constipation are almost invariable.

Diagnosis.—The abdominal walls are usually flaccid, and palpation easy. When the patient stands, the lower part of the abdomen usually shows a round protrusion, while the epigastric region is caved in. This is principally found in females. Descent of the stomach can be most conveniently elicited by splashing. On tapping the left side of the abdomen when the stomach is partly filled, there will be no sound audible immediately below the ribs, while lower down, in the region of the umbilicus, splashing can be distinctly heard. The area over which this splash can be produced will indicate the position of the stomach. Inflation should be reserved for doubtful cases. Aortic pulsation is frequent in these cases, and the transverse colon can often be felt as a cord-like body above the navel. The methods of examination for floating liver and movable kidneys are well known.

Treatment.—The principal part consists in the application of a well fitting **Support** to hold up the lower part of the abdomen. It is immaterial of what the support is made, provided it fulfils this purpose. It should be provided with windows over the iliac crests, and thigh straps to prevent its slipping upwards. Ample **Nutrition** is even more important. The patient must eat more than he or she absolutely requires—good plain food, with plenty of bread and butter, and milk between meals. Out-door **Exercise** to strengthen the abdominal muscles is a great help. Digestive disorders must be managed on general lines. **Iron** and **Arsenic** are of service if there is anæmia, and **Bromides** if there is great nervousness. **Massage** should be used cautiously if at all, but intra-gastric **Faradism** is beneficial in cases which present many functional disturbances of the stomach.

References.—[1]*Med. News,* Sept. 19, 1896; [2]*New York Med.*

Journ. Nov. 5, 1887 ; [3]*Trans. Michigan State Med. Soc.* 1897, p. 41 ; [4]*Neurasthenie*, Paris, 1891, p. 46 ; [5]*Die Wanderniere*, *Berlin*, 1899, p. 311 ; [6]*Med. Rec.* April 13, 1901.

ENTEROSPASM. *R. Hutchison, M. D.*

The comparatively unknown and frequently unrecognized condition of enterospasm is understood to be a spastic state of the intestine, due to simultaneous contraction of the longitudinal and circular fibres. From a series of investigations in the intestinal neuroses and from observing clinical cases, Aborti has collected the following data :

The condition may be caused by anything, intrinsic or extrinsic, which excites the peripheral nerves of the intestine ; as inflammations, ulcerations, or irritation from other organs whose sympathetic ganglia are connected with the intestines. Anything exciting the nerves which govern the intestinal movements, or paralysing the inhibitory nerves, is another cause. It may be the manifestation of a general neurosis ; hence hysteria and neurasthenia are common causes of the affection. The spasm may be general, although it is rarely so in the nervous form, or is limited to one or two points, the colon being the most frequent site. In the first case there is the characteristic retraction of the abdomen in boat-shape ; in the latter the abdomen assumes an irregular outline due to tumours corresponding to intestinal dilatation above the site of the spasm.

The principal symptoms are obstinate constipation with consequent loss of appetite and weakness ; slight abdominal pain located about the umbilicus, if the colon is the site of the spasm ; borborygmus ; tympanites ; tumefaction of the abdomen ; and more or less characteristic fæces, the stools being small, usually cylindrical, and sometimes as narrow as a pencil.

The prognosis depends upon the degree of spasmodic contraction, and the possibility of removing its cause. The condition may persist, causing such changes in the tissues as to constitute a veritable stricture ; or may disappear in a moment, as in hysterical cases. That occlusion of purely nervous origin occurs is proved by the cases which come to operation, in which no lesion can be discovered. The diagnosis is to be made from the symptoms mentioned, but above all by the careful analysis of the patient's general and nervous condition. In the case of rectal spasm the diagnosis must rest largely upon the last named considerations, and upon the effect of treatment.

Massage, faradization, and drastic purges all increase the

spasm. The main reliance in treatment is to be placed upon care of the general health, and such remedies as **Bromides, Belladonna,** and even **Opium** if necessary.[1]

REFERENCE.—[1] *Ther. Gaz.* (editorial), March 15, 1902.

EPILEPSY. *Graeme M. Hammond, M.D., New York.*

Ceni[1] has studied, in six epileptics, the question whether the blood-serum from a severe case of epilepsy can modify the condition of a mild case. Two of his cases showed symptoms of true poisoning from the injections, while in the others no effect was observed. He concludes from this that the blood-serum of epileptics contains no antitoxic substance in the true sense, but does contain a special poison. To ascertain whether the resistance of the organism to this special poison could be increased, perhaps to the point of rendering the subjects immune to its effects, he first injected the blood-serum of one patient into another in increasing doses; and again, a patient's blood-serum was injected into his own circulation some days later. Of eight epileptics treated in this manner, two showed toxic effects, but the others were greatly improved both as regards the motor manifestations of their disease, and also in respect to the psychic and sensory symptoms, so that an actual cure may be hoped for in some cases. He believes that these properties reside in certain products of tissue-change, which in life are attached to the formed elements of the blood, and only after removal of the latter from the body do they become free in the blood-serum, so that in epileptics a natural auto-immunization is not possible.

Pellagrini[2] has instituted researches to determine the relative toxicity of the cerebro-spinal fluid in epileptics. The puncture was made between the third and fourth and fourth and fifth lumbar vertebræ. The quantity of fluid withdrawn varied from 10 to 15 c.cms. His conclusions are as follows :—

(1,) The cerebro-spinal fluid is possessed of a markedly toxic power.

(2,) When it is injected into guinea-pigs it results always in grave and intense convulsive phenomena, so much so that in some instances a status epilepticus is produced.

(3,) The fluid extracted immediately after a convulsion has a toxic power considerably greater than that obtained at periods far removed from the paroxysm.

(4,) That the so-called anti-epileptic drugs exercise no influence upon the toxicity of the cerebro-spinal fluid.

(5,) That cultures upon broth and gelatin from the fluid remain sterile. Lumbar puncture does not appear to influence the course of the disease.

Leon[3] claims to have obtained most beneficial effects from the use of **Cerebrin,** in conjunction with the **Bromides,** and a reduction of the sodium chloride generally taken in the diet. He gives **Sodium Bromide** in doses of from 30 to 45 grains daily, and 2 tablets daily of **Cerebral Extract**, each containing from 3 to 5 grains. In all his cases the severity and frequency of the attacks were diminished.

Spratling[4] considers such antispasmodics as **Camphor**, **Opium** and its derivatives, **Valerian,** and **Belladonna**, to be valuable. The **Opium-Bromide** treatment is serviceable in some cases. In a case of status epilepticus the best formula for stopping the attacks is the following :—

℞ Potassium Bromide	ʒij	Deodorated Tinture of Opium	♏lx
Chloral Hydrate	ʒv	Aq.	ad. ʒxvj
Morphine Sulphate	gr. ij		

Give the patient 1 ounce after six attacks have occurred in rapid succession ; repeat in two hours if not effective. The dietetic treatment is important ; only the lightest and most nutritious foods obtainable should be given.

In regard to the diet of epileptics the observations of Schlöss[5] are interesting. He placed groups of epileptic patients on a strict milk and a meat diet respectively, and after six weeks he failed to detect any noteworthy effect of either regimen upon the number of attacks or the general health of the subjects. Incidentally he found the suppression of sodium chloride reduced the frequency of attacks, but at the expense of the general health and strength. Alcohol in moderate quantities was not found to be injurious.

References.—[1]*Centralb. f. Nerv. und. Psych.* March 15, 1902 ; *Jour. Nerv. and Ment. Dis.* July, 1902 ; [2]*La Riform. Med. Rome,* 1901, Ann xvii, vol ii, p 638 ; *Amer. Med. Jour.* April, 1902 ; [3]*Vratch.* Nov. 8, 1901 ; *New York Med. Jour.* Dec. 14, 1901 ; [4]*Jour. Amer. Med. Assoc.* May 3, 1902 ; *New York Med. Jour.* May 10, 1902 ; [5]*Wien. Klin. Woch.* No. 46 ; *Med. Press,* Jan. 1, 1902.

EPILEPSY (Surgical Treatment of).

Robert Abbe, A.B., M.D., New York.
W. Scott Schley, A.B., M.D., New York.

Comparatively little literature has appeared upon the **Surgical Treatment** of **Epilepsy** during the past year. Following the

wave of enthusiasm for the use of the trephine, there followed a period of scepticism concerning the benefits to be derived from operative procedure, and it is but within the last few years that evidence of a renewal of interest, that will undoubtedly establish the operative treatment of that condition in its proper place as a means for the alleviation and cure of epilepsy, has been observed. As regards Jacksonian epilepsy, an article[1] quoting Putnam may be mentioned: "It may be stated as a fact that would probably be generally admitted that operations for the relief of focal epilepsy, whether these aim at the removal of local sources of irritation or of diseased areas involving the cortex, are often of unquestionably great benefit, although they have not accomplished nearly all that was hoped of them. Not to speak of special cases and groups of cases, some of the best of which have been contributed by American physicians, this statement is substantiated by several recent and careful compilations of German surgeons, as Braun, Graf, and Matthiolus. When it comes to the important question of the comparative merit of **Cortical Excision,** as against operations of less magnitude, such as simple exposure of the cortex or loosening of dural adhesions and the like, which sometimes have an extraordinarily favourable effect, the case is not so clear; especially when it is remembered that the excision is likely to cause lasting incoordination of slight degree, and that the resulting cicatrices may be by no means indifferent for the health of the surrounding parts of the brain. Still, the figures cited by Matthiolus, taken for what they are worth, indicate rather better results from operations in which the brain has been included in the operation than where only lesions of the brain coverings have been treated 'Cures'—*i.e.*, for example, a cessation of fits for five years—have been very few in number, and although such a case as that of Collins and Gerster, where six years have elapsed during which, after cortical excision but under continual **Bromide** treatment, no fits have occurred, is encouraging and impressive, it is to be remembered that in the first case of the series reported by McCosh an equally good result followed simple trephining, separation of the adherent dura from the roughened bone, and the removal of bone fragments, although there can be little doubt that the broken adhesions instantly re-formed, so that the local conditions of nutrition probably remained in the end unimproved."

The use of rubber tissue and gold foil in such cases has been

recommended and practised for the prevention of adhesion formation. Kocher's article of several years ago (see *Medical Annual*, 1901) was in support of operation for the relief of intracranial pressure, which he considered the "unknown factor which is commonly called *status epilepticus*."

REFERENCE.—[1]*Therap. Gaz.* Oct. 1901.

EPISTAXIS. *W. Milligan, M.D.*

A. Brown Kelly[1] calls attention to the occurrence of nasal hæmorrhage from the anterior ethmoidal veins, and considers that the close connection of these veins with the intracranial circulation is responsible for its occurrence. Epistaxis from these veins can be readily controlled by firmly packing a strip of gauze between the septum and the anterior half of the middle turbinated body, reaching as nearly to the roof of the nose as possible.

Sidney Phillips[2] draws attention to the frequency with which epistaxis is found in association with *rheumatism* amongst children. In some cases recorded by him, the epistaxis came on with an attack of rheumatism; in others it alternated with attacks of articular rheumatism, or was preceded by them, and in yet other cases it occurred in connection with *chorea*, which apparently was of rheumatic origin.

REFERENCE.—[1]*Laryngoscope*, Mar. 1900; [2]*Lancet*, Feb. 22, 1902.

ERYSIPELAS. *Norman Walker, M.D.*

Fraser[1] reports a case treated by the application of pure **Carbolic Acid,** followed by **Absolute Alcohol.** The disease disappeared in four days. **Ichthyol** is more generally used, and is much less painful.

Eschle[2] describes his method. He applies a thin layer of wadding, and paints it with undiluted ichthyol.

Tavel[3] discusses erysipelas, and *erysipeloid*, a form of inflammation specially common in those who are brought into close contact with animals, especially undomesticated. The inflammation begins in the deeper tissues, and there is no suppuration, and there is not such a sharp demarcation line as in erysipelas. The disease usually lasts about ten days. The local application of **Blue Ointment,** or **Ichthyol**, is followed by good results.

REFERENCES.—[1]*Brit. Med. Jour.* May 11, 1901; [2]*Cent. fur innere Med.* Sept. 28; [3]*Deut. Zeit. f. Chir.*; *see Lancet*, Jan. 25, 1902.

ERYTHEMA NODOSUM. *Norman Walker, M.D.*

McCulloch[1] reports a case where erythema nodosum and erythema multiforme were present in the same patient. There was a very marked rheumatic history. The patient recovered under **Salicylate of Sodium**.

Moussous[2] has on two occasions seen erythema nodosum develop some days after a child with the affection had been placed in a neighbouring bed, and concludes, surely rather hastily, that erythema nodosum is not a form of erythema multiforme, but a specific affection.

Arsenic.—Neumann[3] reports a case of erythema bullosum occurring on the hands and feet of a patient under the influence of **Arsenic.** Very small amounts had been given; altogether the patient only took 2·2 grains. Lang referred to a similar case which had been under his observation.

Erythema multiforme and vaccination.—At a meeting of the London Dermatological Society, April 9, 1902,[4] several cases were shown which had followed vaccination, and were apparently of the same type as those mentioned in last year's *Annual.* Freeman reports similar cases, and comments that they are more frequent since the introduction of glycerinated calf lymph.

REFERENCES.—[1]*Lancet*, April 20, 1902; [2]*Arch. de Méd. des Enfs.* July, 1901; [3]*Med. Press and Circ.* Nov. 27, 1901; [4]*Brit. Jour. Derm.* May, 1902.

EXOPHTHALMIC GOITRE. (See "Goitre.")

EYE (Diseases of). (See articles on "Amblyopia," "Cataract," "Choroid," "Cornea," "Glaucoma," "Myopia," "Retina."

EYE (Injuries of) *E. H. Holthouse, M.B., F.R.C.S.*

The effect of *modern projectiles* on the eye has been illustrated in the recent war. L. V. Cargill[1] reports his experiences whilst Ophthalmic Surgeon to the Imperial Yeomanry Hospital. The ophthalmic conditions resulting from modern gunshot wounds are very varied, comprising not only injuries to the orbits and their contents, but lesions in the frontal region leading to blindness and diplopia, injuries in the occipital region causing visual defects, and injuries as low down as the root of the neck, causing the ocular effects of sympathetic nerve paralysis. In only a few cases were eyes injured without the orbits being implicated, and conversely, the orbits were very rarely injured without the globes being damaged. In the majority of cases the orbits and their contents alike suffered.

Cases may be classified according as the bullet passes through the orbit vertically, obliquely, or transversely. The last is the most serious in respect to eyesight, since both eyes will probably be destroyed, as in a case where a bullet notched the outer margin of the orbit on one side, and passed through the outer part of the upper lid on the other side, perforating and destroying both eyes in its passage.

Gunshot wounds in the frontal region may cause paralysis of the ocular muscles from injury to their nerves, or may cause blindness, followed later by the signs of optic nerve atrophy.

Gunshot wounds in the occipital region may, from injury to the cortical visual centres of the cuneate lobes and in the neighbourhood of the calcarine fissure, give rise to altitudinal or homonymous hemianopsia. Sometimes attacks of an epileptiform character, with visual aura, resulted.

Paralysis of the cervical sympathetic occurred as a result of gunshot wounds involving the brachial plexus. In these the cardinal ocular signs were present: a narrowed palpebral fissure from slight drooping of the upper lid, slight enophthalmos, and a contracted pupil not dilating in the shade (with loss of skin reflex), together with diminished secretion of sweat on the same side of the face. Shell wounds having an ophthalmic interest seldom came under special treatment, the injuries being often of a fatal character. When the patients survived, the globes, if wounded, were usually ruptured and disorganized in association with other more extensive injuries.

Foreign bodies in the globe.—This subject has become one of great interest and importance since Haab has demonstrated the value of **High Magnetic Power** for the removal of foreign bodies from the interior of the eye. In the latest published statement of his work on this subject Haab[2] gives the conclusions based upon a series of 165 cases. For bodies influenced by it—and they are the majority—the electro-magnet is the instrument with which to effect their extraction from the eye. He considers it of the highest importance that there should be as little disturbance as possible of the vitreous. This is the reason for employing a powerful magnet, one that can act on the foreign body without having to be introduced within the sclera. A strong magnet fulfils all requirements, for its action can be controlled so as to serve when only a feeble attraction is wanted. The X-rays and the sideroscope, though valuable aids to diagnosis, are generally unnecessary when a giant magnet

is available. Among the 165 cases there were twenty-four failures to extract the foreign body, either because it was too firmly embedded, had become entangled in exudation, or was drawn into the ciliary region, or into the tissues at the side of the wound. In seventy-one cases useful eyes were secured.

A report of nine cases in which portions of steel were removed from the eye by means of **Haab's Magnet** is made by W. T. Holmes Spicer and A. F. Maccallan.[3] Two of the cases resulted in recovery with almost perfect vision, $\frac{6}{9}$ with correcting glasses; one with vision of $\frac{6}{12}$, although at the time of admission there was iritis with hypopyon; two others had vision of $\frac{6}{60}$, with a possibility of further improvement by needling of opaque lens capsule; all these had perfect projection. In two other cases the eyes were in a condition of acute inflammation at the time of the operation, and in one case so much destruction had been produced by the large size of the piece of steel that the prospect of saving the eye was from the beginning hopeless. These eyes were lost. The general conclusions arrived at were as follows:—

(1,) When the patient is brought up to the magnet, it is the rule for severe pain to be experienced by him if a magnetisable particle is present in the globe. Haab's magnet is therefore of valuable diagnostic service in determining the presence or absence of a magnetisable particle.

(2,) Localization by the X-rays is extremely important. By their means it is possible sometimes to avoid injury to a clear lens in the extraction of a foreign body, and entanglement in the iris can be avoided if its precise situation is known. Nevertheless, if some delay is unavoidable before the X-rays can be applied, we advise in certain cases immediate extraction of the foreign body by Haab's magnet without precise localization; for example—(*a*) in which there is considerable inflammation; (*b*) in which there is a recent traumatic cataract. In each of these cases there is considerable danger in delay.

(3,) If there is a recent wound we attempt to remove the foreign body through it, using Haab's magnet alone. If this wound has firmly healed it is necessary to make an opening for its exit. This may be either corneal, in which case the foreign body is withdrawn by Haab's magnet; or peripheral, in which case we usually employ the small magnet for the removal of the foreign body from the anterior chamber after it has been brought forward by Haab's magnet. The latter method is the one we generally adopt.

(4,) In all cases it is most essential that entanglement of the particle in the iris and ciliary body should be avoided. By bringing the patient up to the magnet gradually from a distance, and by increasing the strength of the current up to the maximum slowly, this is to a certain extent guarded against. The idea of this manœuvre is to prevent the particle from rushing forwards from its posterior position and burying itself in the iris.

Two other cases have been reported by R. Williams.[4] The value of the instrument is well illustrated, but the writer is struck with the fact that the strength of the magnet causes such traction that serious mischief may follow the sudden discharge of the particle, especially if the wound of exit be not sufficiently free.

REFERENCES.—[1]*Brit. Med. Jour.* Oct. 26, 1901 ; [2]*Amer. Med. Assoc.* June, 1902, *Ophth. Rev.* Oct. 1902 ; [3]*Brit. Med. Jour.* Jan. 18, 1902 ; [4]*Treatment,* Dec. 1901.

EYE (Special Therapeutics of). *E. H. Holthouse, M.B., F.R.C.S.*

The use of **Suprarenal Extract** in affections of the eye is extending. It is a strong hæmostatic, its vaso-constrictor action making it valuable in acute inflammatory conditions. D. S. Reynolds,[1] in a series of observations on diseases of the eye, concludes that : (1) It is a powerful hæmostatic and acts promptly, generally within one minute from the time it is applied to mucous surfaces ; (2) Its effects persist from twenty minutes to four hours ; (3) It promptly relieves ciliary pain in all forms of keratitis, iritis, and even cyclitis of glaucoma ; (4) It reduces ocular tension in glaucoma, and apparently prevents hæmorrhage in iridectomy ; (5) It promptly clears up interstitial opacities of the cornea following contusions, and seems to modify favourably the opacities of punctate keratitis in cases of syphilitic iritis; (6) It will, in many cases, so reduce the swelling in the tear passage as to allow a stream of fluid to pass from an Anel syringe through the duct without the aid of a probe.

L. Thilliez[2] has met with the happiest results in his use of it. The solution employed by him is composed of equal parts of distilled water and the dried suprarenal powder. The results are constant. The profound anæmia which is induced in the conjunctiva by its use lasts from one to two hours, according to the individual and the quantity used. He considers its use most valuable in intense conjunctival injections. It is useful in cases of keratitis and iritis with injection.

J. A. Bower[3] has found solutions made from the various

forms of the dried preparations to be uncertain and unreliable in action. He has used, therefore, a fresh solution of the gland from the pig, in the proportion of 12 grains to 1 drachm, but proposes in future employing stronger solutions. It gives its very best results in typical acute muco-purulent conjunctivitis, but is contra-indicated in corneal ulcers.

G. A. Ferdinands[4] makes use of the preparation known as **Adrenalin Chloride** diluted in normal salt solution (1-1000). This is colourless, odourless, sterile, and stable if protected from light, heat, and oxidation. Applied to the inflamed conjunctival sac it gives relief in a few moments, though several instillations may be required in severe attacks. By absorption into the anterior chambers it acts on the congested iris, and is therefore particularly valuable in iritis. This observer considers that since the introduction of cocaine no drug of greater interest and use has come before us. He gives ample bibliography at the end of his article.

The use of **Dionin** as an analgesic in deep-seated inflammations of the eye was discovered accidentally by Darier[5] when treating a case of severe, painful rheumatic iritis. Its instillation at first caused severe smarting and great œdema of the lids and conjunctiva, but within an hour the pupil was dilated and the pain ceased, not to return. Numerous other cases were similarly relieved. The mode of action of the drug is difficult to explain. The effect is local, and not general, for if placed in one of two painful eyes the one is relieved whilst the other remains painful. Its lymphagogic action is essential, for when no œdema is seen no relief is given. In employing it, a 5 per cent solution is the most valuable; stronger solutions do not keep well. Its use is especially indicated in those cases of deep injury or inflammation in which cocaine is almost impotent.

G. E. de Schweinitz[6] reports favourably on the use of the same drug in herpes zoster ophthalmicus.

References.—[1]*Amer. Jour. Med.* March, 1902; [2]*Med. Rec.* Oct. 12, 1901; [3]*Brit. Med. Jour.* Nov. 2, 1901; [4]*Ibid.* March 22, 1902; [5]*Treatment*, Dec. 1901; [6]*Therap. Gaz.* June 15, 1901.

FIBROMYOMA OF UTERUS.

Arthur E. Giles, M.D., B.Sc., F.R.C.S.

Etiology.—It is a matter of great importance and interest to determine in what structures uterine fibromyomata originate. It is now generally held that Recklinghausen's theory of the

origin of fibromyomata from unobliterated remnants of embryonic glandular structures does not account for the majority of cases, even if it explains a minority. In a case in which a uterus the size of a fist contained 120 fibroids, Bland-Sutton[1] had the opportunity of examining the microscopic structure of some minute growths. In all that were investigated the structure was that of plain muscle tissue, and even in the very smallest the alternate and whorled disposition of the spindles was very striking. (See *Fig.* 12, from *British Medical Journal*).

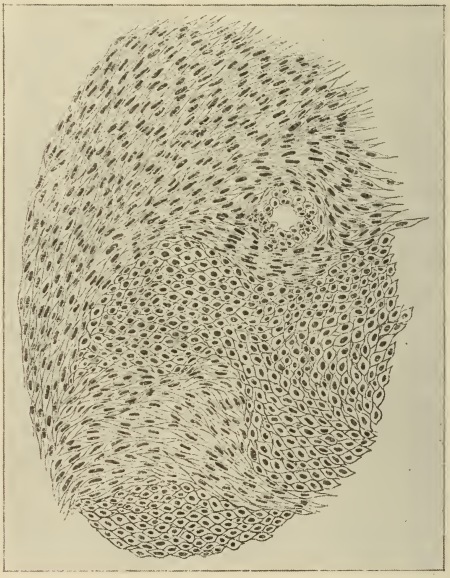


Fig 12.—The minute structure of a seedling fibroid. The circular cells are spindles cut a right angles. This figure represents a complete section through the equator of an embryonic fibroid the size of a mustard seed. (Bland-Sutton).

In all that were examined the tumour cells were found disposed around the blood-vessels; this arrangement was so obvious that the architecture of these tiny tumours may be described as bundles of plain muscle fibres twined around and intimately associated with the walls of capillaries. Indeed, the relation of the vessels to the cell elements of these seedling tumours was such as to suggest that the muscular coats of the vessels are the source of fibroids.

This view was first propounded, we believe, by Pilliet, whose description is thus quoted by Stanmore Bishop.[2] "The endothelium," he says, "remains normal; the adventitia gives origin to a zone of embryonic cells, which multiply and develop into rows of concentrically-placed smooth muscular fibres arranged around the vessel. The fibrous layers arise from the transformation of the most peripheral muscular layers which are furthest from the vessel, and which, therefore, do not receive sufficient nourishment to allow of their normal development." Klebs, Meslay, and Hyenue agree with this description of the initial stage. Kleinwachter, Roesger, and Gottschalk mainly differ as to the relative size of the arteries involved, the first attributing it to changes beginning in the smallest, Roesger to those which possess an adventitia, and Gottschalk to the larger arteries.

In the discussion on Bishop's paper, Targett said he had examined sections of many uterine fibroids, and thought there was abundant evidence of thickening of the muscular coat of the vessels and of their fibrous sheaths. After a time the new material became fibroid and almost devoid of nuclei. This degenerative change was very characteristic of uterine myomata, and enabled their structure to be easily distinguished from normal uterine tissue.

Pathology.—Bishop (*op. cit.*) reports the results of his investigations on the influence of a fibromyomatous growth on the endometrium. He finds that in the early stages, and whilst still intramural, it tends to produce hyperplasia of the endometrium. When becoming sufficiently submucous to exert some pressure upon the membrane, it produces compression of the glands, with subsequent disintegration both of them and of the inter-glandular substance. When actually polypoid into the uterine canal, the endometrium over the actual mass, and the opposing uterine wall, is reduced to a single layer of cells, which becomes progressively thinner in proportion to the pressure exerted, and approximates the squamous type. From these observations he draws the following important practical conclusions: The use of the curette for the purpose of checking hæmorrhage, so much advised in earlier times, would seem to be justified in those stages of the disease which occur before the tumour becomes polypoid. The endometrium is at first hypertrophied, then degenerate, and in either case might be removed with good effect; but the case is altered when an actual myomatous polypus is present. Then the endometrium over the tumour and

opposed to it, being reduced to a mere line of epithelium, its removal can do no good, and may have very evil results, by laying open lymphatics, and permitting the entrance of micro-organisms, thus producing necrosis of the tumour on the one hand, and metritis on the other. He points out that valuable information may be gained from a study, not of the fibroid tumours, but of the uterus itself, and his observations on the condition of the small uterine arteries throw light on the subject of the origin of fibromyomata from these structures, above alluded to. Thus he finds that the arteries in a uterus which has been the site of a fibromyomatous neoplasm show certain changes in their structure differing from the normal; that those changes consist mainly of a more or less irregular hypertrophy of the muscular coat, and that it is perfectly possible that such hypertrophy carried to a sufficient extent might produce the masses or neoplasms which are known as fibromyomatous tumours.

Complications and Degenerations.—Attention has been drawn of late to the relation that is not uncommonly found between fibromyomata, and disease of the heart and blood-vessels. Duncan[3] in a discussion on "When and how to operate on uterine fibroids," stated that fatty heart was not uncommonly met with, and related a case in which a patient suffering from fibroids, complicated by pregnancy, was seized with fatal cerebral hæmorrhage while awaiting operation.

Myoma is occasionally found complicated by diabetes. Jahreiss[4] records a case of a woman, aged forty-eight, who had suffered from severe menorrhagia for four years, and had become thin and miserable-looking, subject to palpitations and œdema of the feet. For a few months she complained of severe thirst. Anæmia was very marked, with evidence of valvular disease. The urine was loaded with sugar, but without albumin. An interstitial myoma reached to the umbilicus. He considered that hysterectomy was contra-indicated on account of the condition of the heart and the anæmia. Jahreiss thinks that the hæmorrhages may have had some influence on the diabetes. He states that another patient had sugar in her urine after two severe attacks of epistaxis, though before and shortly after each attack no trace of glucose could be detected. Kleinwachter[5] finds that only six cases of diabetes complicating uterine myoma have been reported, and they include two in his own practice, which differed from the remainder in that the fibroid was small,

the hæmorrhages trifling, and the proportion of sugar in the urine small. It is very doubtful if any true causal relation between the two conditions exists.

That a fibroid may lead to inversion of the uterus is well known; but the occurrence is rare. Amann[6] met with an instance, the patient being forty-one years of age. On examination a sloughing fibromyoma was found in the vagina, to which it had contracted a firm adhesion. It sprang from the fundus uteri, which was dragged down, so that the uterus was completely turned inside out, the cervix sharing in the inversion.

Of the degenerations of myomata, myxomatous softening, neurosis, and septic infection are well known; the question of the malignant degeneration of myomata is one, however, which is far from settled. Cullen[7] states that he knows of three specimens in which the centres of myomata contained sarcomatous tissue. Christopher Martin[8] reports that he has seen seven cases in his own practice. The occurrence of carcinoma with myoma cannot, of course, be regarded as due to degeneration of the myoma; it is rather a complication. It may arise in the stump when supra-vaginal amputation of the uterus has been performed; but it is probable that carcinoma of the cervix is not more common among women who have fibroids than among women who have not.

Risks and mortality of fibroids.—The tendency to under-rate the dangers of fibromyomata when left alone, is giving way to a more enlightened understanding of the matter. In the discussion on Duncan's paper, above referred to, Mrs. Garrett Anderson said she had no right to be considered an authority on the operative treatment of fibroids, but she had lived long enough to see how many fibroids killed if not operated upon. She had seen several women die of cerebral hæmorrhage soon after fifty years of age from atheromatous or calcified arteries due, as she believed, to the deteriorating effect of prolonged and very excessive hæmorrhages. She also remembered a good many cases in which patients with old fibroids eventually lost their lives from degeneration of the tumour, malignant or suppurative. On the same occasion Mrs. Scharlieb observed: "Several of my patients have had sarcomatous infiltration of a fibromyoma; several such tumours have sloughed; many have been complicated by pyosalpinx, hydrosalpinx, and other diseases of the adnexa. Indeed, I have learnt to look on the supposed innocent fibroid as a fiend ready to play any nasty trick."

Noble,[9] in a paper on "The complications and degenerations of fibroid tumours of the uterus," compares the statistics of operative with expectant treatment. He finds that his own mortality in 345 cases was 4·9 per cent, and that of other operators is about the same; he considers the mortality of fibroid tumours, including that of their degenerations and complications, to be at least 33⅓ per cent. He concludes his paper in the following words: "Believing that the best treatment of fibroid tumours in general is their early removal, the question remains whether there are no exceptions to the rule. The best answer to this is that each case must be decided upon its merits. It is my individual experience that small multinodular sub-peritoneal fibroids in women, forty years of age or more, are the least apt to grow and to cause serious symptoms. Conversely, sub-mucous and intramural fibroids in younger women are the most apt to develop and to cause serious trouble. It has been my experience to meet with but few fibroids which were not producing symptoms, and it is therefore my belief that the percentage of cases is small in which operation is not more advisable than expectancy."

The complication of fibroids associated with pregnancy is considered separately.

Diagnosis.—In most cases diagnosis of fibromyomata is not difficult. Two unusual cases are reported in which a diagnosis of pregnancy was made. In Mallett's case[10] the patient was aged thirty-two, twice married, and only once pregnant. Menstruation was scanty but regular; an abdominal tumour was discovered, and pregnancy diagnosed. A soft fluctuating tumour reached to the umbilicus, lying more to the right than the left. No fœtal heart sounds and no uterine movements could be detected. A pigmented line extended from the umbilicus to the pubes. The cervix was slender and hard. But the breasts were distinctly enlarged, plainly pigmented, and contained an abundance of colostrum. The vagina was not discoloured. There was great difference of opinion about the nature of the tumour. A prominent gynæcologist diagnosed it as an ovarian cyst. An exploratory incision was made revealing what seemed to be a pregnant uterus, perfectly symmetrical and elastic; the veins were dilated enormously. Of two distinguished authorities present at the operation, one diagnosed pregnancy, the other declined to express an opinion. The abdominal wound was closed. Next morning sensations like labour pains set in. In the afternoon an attack of symptoms as seen in pulmonary

embolism occurred, and the patient died a quarter of an hour after they commenced. No necropsy was allowed, beyond opening of the abdominal wound. The uterus was the seat of a large soft fibromyoma, with tracts of very firm myomatous tissue. Lockyer's case[11] was a single parous woman, aged twenty-two. Menstruation was excessive. The possibility of a six month's pregnancy was admitted by the patient. On vaginal examination the os uteri was found to be fully dilated, and a tense elastic membrane bulging. The abdominal tumour was smooth, uniform, and extended up to just above the umbilicus. A diagnosis was made of pregnancy with a decomposing fœtus. Some days later, on puncturing the membrane a small quantity of œdematous fluid escaped ; the patient was then anæsthetised, when Lockyer removed by *morcellement* a very œdematous fibromyoma, which was extensively cystic in the upper part of its extent ; when this part was reached about 30 ounces of yellowish golden-coloured fluid escaped. The solid part of the tumour weighed 2 lbs. after removal. The empty uterine cavity measured 6 inches. The most important deduction from these two cases is, that when menstruation has not been interrupted, a diagnosis of intra-uterine pregnancy must be made with great caution, even though the physical signs make such a diagnosis probable.

Indications for operation.—In a recent communication[12] I summed these up as follows: (1) Excessive hæmorrhage ; (2) Pressure symptoms ; (3) Great and continued pain ; (4) Chronic disablement due to one or more of these conditions ; (5) Rapid growth, (6) evidence of septic or degenerative changes, (6) interference with labour. As regards the number of cases of fibroid in which interference is called for, Olshausen[13] notes that in 200 cases in private practice he found it necessary to operate in only 33. During the three years from 1897 to 1900, 320 private cases were seen, in only 53 of which was an operation indicated. He believes that probably 18 per cent really require operation.

Treatment.—Schaller[14] believes that much can be done by palliative treatment. The diet must exclude all excitants and be bland. **Rest** during the menstrual flow, and ice or cold water local applications are useful in dysmenorrhœa. He criticises **Hydrastis** favourably, but gives the preference to **Ergotin.** He claims that prolonged treatment by hypodermic injections of Bombelon's ergotin gives exceedingly good results. Locally hot vaginal douches are useful, but should these not

control the hæmorrhage, he packs the vagina and sometimes the cervix and cavity of the uterus with gauze. Much good is often derived from painting the mucosa with **Tinct. Iodine,** 50 per cent **Acid. Carbol.** in spirit, or 10 per cent to 50 per cent **Chloride of Zinc** solution, when there is much hypertrophy. He considers that a judicious use of the curette, especially after the application of escharotics, is a very valuable means of treatment. He does not believe in electrical treatment, and stigmatises the suggestion of massage or sucking the nipples as grotesquely comic.

Duncan (*op. cit.*) recommends **Dilatation** and the use of the **Curette** when a woman suffers from menorrhagia and the uterus is enlarged by fibroids. In discussing Duncan's paper, Campbell pointed out that there is a certain amount of risk in interfering with many cases of fibroid in this way, and careful consideration should be given to the selection of suitable examples. So long as the uterine cavity is small and simple there can be nothing but good derived from such interference, but when it is large and tortuous it is a different matter. It is then impossible to reach every part of the endometrium with the curette ; it is impossible to secure complete drainage, do what you will ; and it is impossible to avoid setting up sloughing of the fibroid from injury to its blood supply. On these grounds cases for dilatation and curetting should be carefully selected.

Franklin Martin[15] recently discussed at some length the treatment of fibroids by **Electricity.** At one time he submitted practically all his cases to the Apostoli treatment. The present status of the electrical treatment of fibroids of the uterus was, in his opinion, that it had been properly superseded by surgery as a conservative remedy. He now recommended its employment in the following cases only: (1) As a local and general tonic, and for the relief of pressure and reflex pains, and of hæmorrhage in cases with complications contra-indicating surgery ; (2) In all interstitial fibroids where operative assistance was absolutely refused by the patient ; (3) In tumours of small size of the interstitial variety in which hæmorrhages were the principal symptom in women within one or two years of the menopause.

Operative Treatment.—In the early days of hysterectomy, although the mortality was high, that of myomectomy was even higher, and consequently the great majority of patients were submitted to the more radical procedure. With improvements in asepsis and technique, there has been a marked revival of conservative procedures. Thus Olshausen (*op. cit.*) pleads for

the more general adoption of **Myomectomy**, instead of supra-vaginal amputation of the fibroid uterus, especially in women under forty. Beverley Campbell[16] in a paper on the subject points out that all of the different varieties of fibromyomata, namely, the subperitoneal, the interstitial, and the submucous, may be treated by this method. By many operators it has been limited to the pedunculated subperitoneal variety. However, it has now been successfully applied to every variety of fibromyomata, with satisfactory results as to the immediate mortality rate and permanence of cure. The author concludes that **Myomectomy** should be the preferred method in every case where it is possible to adopt it without extra risk to the patient, and where the ovaries can be conserved with the uterus.

In the discussion on Campbell's paper, several speakers concurred in his views. Warren regarded myomectomy as a formidable operation, always attended with considerable hæmorrhage, except in the sub-serous variety where there was a pedicle, and the surgeon could incise the serosa around it and simply peel the tumour out ; but in the majority of cases, where we had a combination of the interstitial and sub-serous varieties, it might be necessary to cut through the entire thickness of the uterine wall. Then it was not a simple operation ; it was one that required not only great dexterity, but good judgment in determining exactly the limits of the myomatous mass which was to be removed. Tichenor especially deprecated myomectomy in the case of multiple fibroids.

Doleris[17] objects to myomectomy on a different ground. He reports four cases of myomectomy in which small fibrous nodules which were regarded as insignificant at the time of operation, subsequently developed to such an extent as to require removal. In view of his experience in these and similar cases, he has decided to remove only pedunculated tumours or those which are easily accessible, where the uterus appears to be of normal size. He thinks that the dangers of hæmorrhage and sepsis have been underrated, and that in future the indications for myomectomy will be limited.

Lapthorn Smith[18] in a paper on Pryor's operation said that he was opposed to myomectomy ; the operation was quite as dangerous as hysterectomy ; there was very seldom any reason for it, most of the women who have fibroids being either unmarried, or at an age too advanced to raise children to advantage, or having passed the child-bearing age altogether. After sub-

mitting to such a serious operation, the patient has the right to be guaranteed against a second or a third one for the same disease. So many women have been disappointed by these incomplete or so-called conservative operations, that their friends who really could be cured by an operation hesitate to undergo it. He would make an exception, of course, in case of there being apparently only a single polypus, no matter how large, or a single pediculated sub-peritoneal tumor.

My own opinion is that myomectomy has a decided place in the operative treatment of fibromyomata of the uterus. In a recent paper[19] I formulated my views on the subject, taking up the position that the kind of operation to be performed must depend on the position and size of the tumours. I will here repeat my observations, with illustrations of the different types of tumours to which the various procedures are applicable. The operative measures which may be required may be classified as follows: (*a*) *Vaginal operations:* (1) Vaginal myomectomy; (2) Vaginal enucleation; (3) Vaginal myomectomy or enucleation with morcellement; (4) Vaginal hysterectomy; (5) Vaginal hysterectomy with morcellement. (*b*) *Abdominal operations:* (1) Abdominal sub-peritoneal myomectomy; (2) Abdominal interstitial myomectomy or enucleation; (3) Abdominal submucous myomectomy or hysterotomy; (4) Abdominal hysterectomy; (5) Abdominal panhysterectomy; (6) Cæsarean hysterectomy.

(*a*). Vaginal Operations.

(1,) *Vaginal myomectomy.*—By this is meant the removal entire of a pedunculated (polypoid) myoma from the interior of the uterus. The tumour may project into the vagina, or it may be confined within the uterine cavity, when the cervical canal will require to be dilated in order to remove it. This method is limited by the size of the tumour; but the limit of size is reached sooner with intra-uterine tumours than with those that have become extruded into the vagina. Types of myomata suitable for this treatment are shown in *Plate XIII, Fig. A.*

(2,) *Vaginal enucleation.*—This means the removal, *per vaginam*, of a myoma embedded in the substance of the uterine wall. It is always necessary to dilate the cervical canal; and, as in the case of an intra-uterine polypus, it may be necessary to obtain more room for manipulations, either by bilateral division of the cervix, or by reflecting the bladder from the front of the uterus, as in the preliminary stage of vaginal hysterectomy,

PLATE XIII.

FIBRO-MYOMATA OF UTERUS.



Fig. A.

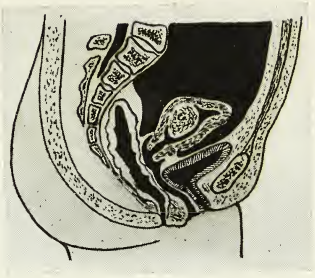


Fig. B.

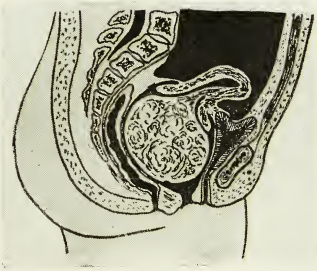


Fig. C.



Fig. D.

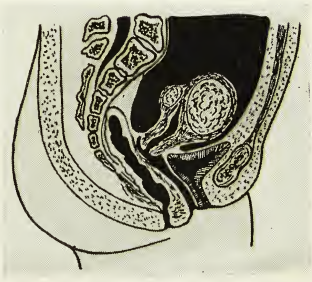


Fig. E.

and dividing the anterior wall of the cervix and uterus in the middle line for two to three inches. When the tumour is reached its capsule is incised, and the growth is enucleated. A myoma of the type suitable for removal by vaginal enucleation is shown in *Plate XIII, Fig. B.*

(3,) *Vaginal myomectomy or enucleation with morcellement.*—This means the removal of a polypoid or interstitial myoma *per vaginam*, after division of the tumour into two or more portions, its size being too large to admit of its removal entire. (*Fig. C, Plate XIII.*) No hard and fast lines as to size can be laid down, because much will depend on the room afforded in the pelvis for manipulation ; but broadly it may be said that an intra-uterine tumour of the size of an orange, or a tumour the size of a closed fist lying in the vagina, will require to be divided before removal. With a large intra-uterine tumour, as in *Plate XIV, Fig. F*, I prefer the operation of abdominal hysterotomy, which will be described later on.

(4,) *Vaginal hysterectomy.*—By this is meant the complete removal of the uterus by the vaginal route. It is commonly performed on account of cancer ; but its application to myomata is exceedingly restricted, because very few myomatous uteri small enough to be removed through the vagina require to be dealt with by surgical means. I have not had a case of this kind.

(5,) *Vaginal hysterectomy with morcellement.*—By this is meant the removal of the uterus through the vagina after its division into two or more portions, when it is too large to be removed entire. This plan has its advocates, but in my opinion abdominal hysterectomy is, under these circumstances, a simpler and safer operation.

(*b*). Abdominal Operations.

(1,) *Abdominal sub-peritoneal myomectomy.*—By this is meant the removal, after opening the abdomen, of a pedunculated subperitoneal myoma. The uterus is left intact. The pedicle is often a narrow one, and can be dealt with in the same way as the pedicle of an ovarian tumour. In other cases the base of attachment is broader, and is then best dealt with by incising the capsule of the tumour all round, close to the pedicle, and shelling out the tumour. The pedicle is then brought together by mattress sutures, and the peritoneum united over it. This is a very satisfactory operation, as the uterine functions are in no way interfered with. It may be observed that not infrequently

operation is undertaken in these cases in the belief that an ovarian tumour is present, as the usual classical symptoms of myoma are absent. This type is shown in *Fig. D, Plate XIII.*

(2,) *Abdominal interstitial myomectomy or enucleation.*—This means the removal, by the abdominal route, of one or more interstitial myomata from the substance of the uterine wall. In some cases many separate tumours have been thus removed, sometimes through one incision. In my opinion the applicability of the operation is limited to cases where at most two or three tumours are present. In other cases hysterectomy is preferable, because the removal of many tumours is accompanied by a great loss of blood, and the maimed remnants of such a uterus are of no possible use to the patient. Moreover, the fact that many myomata have been present renders it probable that other tumours may form. When only one or two moderate-sized tumours have been enucleated, the uterus is still capable of the function of child-bearing. The type is shown in *Fig. E, Plate XIII.*

(3,) *Abdominal sub-mucous myomectomy or hysterotomy.*—By this is meant the opening of the uterine cavity by an incision made through the abdomen, and the extraction of a myoma from its interior. It is specially indicated in the case of a single myoma occurring in a young subject. Thus I performed the operation on a single woman, æt. twenty-three (*vide Obst. Trans.*, vol. xlii, 1900, p. 299). As I pointed out in the report of that case, it is important that the cervical canal should be dilated to secure free drainage. *Fig. F, Plate XIV*, shows this type. Rabagliati[20] has more recently reported a successful case of abdominal hysterotomy (submucous myomectomy by hysterotomy) in a single woman, aged thirty-five. The indications were as mentioned above.

The three procedures last described are of a typically conservative character, the tumour being removed and the uterus preserved. In the remaining ones the uterus is of necessity sacrificed with its tumour or tumours.

(4,) *Abdominal hysterectomy.*—By this is meant the removal of the uterus through an abdominal incision. It is generally understood that the cervix is left behind, the uterus being amputated at about the level of the internal os, in contradistinction to pan-hysterectomy, in which the cervix also is removed. (*See Plate XIV, Fig. G.*)

(5,) *Abdominal pan-hysterectomy.*—By this is meant the

PLATE XIV.

FIBRO-MYOMATA OF UTERUS.



Fig. F.

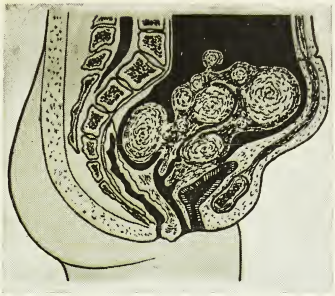


Fig. G.



Fig. H.

complete removal of the uterus, including the cervix, through an abdominal incision. There are several ways of performing the operation. The plan I have followed is that of Mr. Bland-Sutton, who, either after cutting across the uterus, or omitting that step, dissects the cervix out, leaving only its vaginal covering, which thus resembles a tailor's thimble from which the finger has been removed.

(6,) *Cæsarean hysterectomy.*—I have put this in a category by itself, because the indications for operation are not those that usually apply to myomata, but depend rather on obstetric considerations. The operation is undertaken because labour is obstructed by one or more myomatous tumours. The steps of the operation resemble those of an ordinary hysterectomy, except that the child and placenta must first be removed by Cæsarean section. Hence I have called it Cæsarean hysterectomy. It differs from Cæsarean section proper in that the uterus itself is sewn up and left behind in the latter operation ; and it differs from Porro's operation because the features of the latter are the use of the *serre nœud* and the extra-peritoneal fixation of the stump in the abdominal wound. The type is shown in *Plate XIV, Fig. H.*

Dartigues[21] reports a number of cases of vaginal enucleation, with or without *morcellement,* by free unilateral or bilateral cervico-vaginal hysterotomy. This operation, largely performed by Segond, is suitable for sessile, submucous, and interstitial fibroids. The steps of the operation are free division of the cervical canal, on both sides, so as to expose the fibroid or allow as easy access to it as is possible, and then enucleation with *morcellement,* if necessary. The smallest fibroid removed by Segond weighed under an ounce and was as big as a walnut ; the largest was over 2½ lbs. in weight. All the 25 cases collected by Dartigues recovered.

The vaginal operation is also highly spoken of by Christopher Martin,[22] who describes the procedure to be followed.

Ligature of the uterine arteries.—This is recommended by Gottschalk[23] as a palliative measure for hæmorrhage caused by myomata ; and Goullioud[24] reports excellent results from forcipressure, which he finds more simple than the ligature, and equally efficacious.

After-treatment.—In speaking of the prevention of shock after hysterectomy, Christopher Martin (*op. cit.*) says : "The most important points in preventing shock are : (1) Avoidance

of undue exposure, handling, and chilling of the bowels during the operation; (2) The use of the Trendelenburg position; (3) Avoidance of undue loss of blood; (4) Reasonable rapidity in operating, provided due care be taken to secure all bleeding points and to take every antiseptic precaution. A rapid operation is of little avail if the patient dies of sepsis or hæmorrhage, due to the operator's undue haste; (5) After my hysterectomies I always raise the foot of the bed 12 to 18 inches, and thus maintain the patient for twelve hours in a modified Trendelenburg position; (6) In cases of shock after prolonged operation I inject strychnine hypodermically, and administer saline solution by sub-mammary injection; (7) After all abdominal sections for pelvic disease I give fluids freely—by the mouth if there be no sickness, by the rectum if there be. I have long discarded the old starvation plan of after-treatment."

Ultimate results of operations.—Burckhard[25] finds, from an analysis of the statistics of a number of operators, that with few exceptions the results of myoma operations are quite satisfactory. After castration hæmorrhage usually ceases if all the ovarian tissue has been removed; the tumour ceases to grow and usually diminishes in size. Menstrual molimina rarely persist after the removal of both ovaries, but may do so if one ovary is left, even if the uterus is removed. When the entire uterus is removed, with or without the adnexa, disturbances are less frequent than after castration and supra-vaginal amputation; if the ovaries are left they are still more rare. The writer has never observed profound psychical disturbances after the removal of both ovaries. But since no injury to the health results from the presence of the ovaries after hysterectomy, and climacteric phenomena are less marked, they should always be preserved when they are healthy.

A careful enquiry into the after-histories of 100 cases of supra-vaginal hysterectomy for fibroids operated upon at the Chelsea Hospital for Women has been made by Crewdson Thomas.[26] Space will not allow of a detailed examination of this important paper, but we quote the conclusions: "From the standpoint of the patients the operation is an eminently satisfactory one, and their capacity for work is greatly increased. The statistics clearly demonstrate that one ovary should be retained, but that the importance of this diminishes in proportion as the age of the patient approaches more closely the climacteric period. The operation *per se* causes no tendency to insanity, but a certain

number of patients complain of a diminution in their powers of memory. The pain and discharge resulting from the operation are very slight ; the functions of the bowel and bladder are not usually interfered with, and the sexual sensations, as far as can be gathered, are not generally influenced by the operation."

REFERENCES.—[1]*Brit. Med. Jour.* April 6, 1901 ; [2]*Med. Press,* Dec. 25, 1901 ; [3]*Brit. Med. Jour.* Oct. 5, 1901 ; [4]*Cent. f. Gyn.* No. 2, 1901 ; [5]*Zeits. f. Geb. u. Gyn.* vol. xliii, Part 2, 1901 ; [6]*Cent. f. Gyn.* No. 1, 1902 ; [7]*Johns Hopkins Hosp. Bull.* Oct. 1901 ; [8]*Brit. Med. Jour.* Oct. 5, 1901 ; [9]*Amer. Jour. of Obst.* vol. xliv, No. 3, 1901 ; [10]*Amer. Jour. of Obst.* May, 1901 ; [11]*Brit. Med. Jour.* Oct. 5, 1901 ; [12]*Clin. Jour.* July 23, 1902 ; [13]*Zeits. f. Geb. u. Gyn.* vol. lxiii, Part 1 ; [14]*Münch. Med. Woch.* Feb. 12, 1901 ; [15] *Med. Rec.* Jan. 4, 1902 ; [16]*New York Med. Jour.* Feb. 28, 1902 ; [17]*La Gynècologie,* No. 12, 1900 ; [18]*Canadian Jour. of Med. and Surg.* April, 1902 ; [19]*Clin. Jour.* July 23, 1902 ; [20]*Med. Press,* Dec. 11, 1901 ; [21]*Rev. de Gyn. et de Chir. Abd.* Sept. and Oct. 1901 ; [22]*Brit. Med. Jour.* Oct. 5, 1901 ; [23]Abst. in *Therap. Gaz.* May 15, 1901 ; [24]*Ibid.* ; [25]*Zeits. f. Geb. u. Gyn.* vol. xliii, Part 1 ; in *Amer. Jour. Med. Sci.* May, 1902 ; [26]*Lancet,* Feb. 1, 1902.

FIBROMYOMA OF UTERUS COMPLICATING PREGNANCY.

Arthur E. Giles, M.D., B.Sc., F.R.C.S.

At the outset two questions arise in relation to this complication : (1) What is the effect of pregnancy upon fibroids ? and (2) What is the effect of fibroids upon pregnancy ?

The first question resolves itself into this : Given a fibroid tumour, what effect will be produced upon it by the supervention of pregnancy, and how will the question of operation on account of the tumour be influenced thereby ? The answer will depend in some measure on the position of the tumour. The growth of a subperitoneal fibroid is very little influenced by pregnancy ; but if the tumour lies in the pelvis, the addition of pregnancy is likely to lead to pressure symptoms, or to degenerative changes from interference with the blood-supply, demanding operation. On the other hand, interstitial and submucous tumours tend to more rapid growth if pregnancy occurs, but there is less tendency to degenerative changes ; pressure symptoms may arise if the tumour or tumours involve the lower part of the uterus. The deduction is that the advent of pregnancy with any kind of fibroid tumour lying in the pelvis or involving the lower part of the uterus may necessitate operation during pregnancy, on account of symptoms associated with the tumour. During the puerperium, interstitial

and submucous fibroids are specially liable to degenerative changes and septic infection ; they are also apt to set up serious hæmorrhages. On these grounds operation may be required, sometimes urgently, during the puerperium.

The second question is, What is the influence of fibroids on the course of pregnancy and labour ? In a recent paper Donald[1] expressed his views on this subject. He said that he had come to the conclusion that in the majority of instances neither pregnancy nor labour was seriously influenced by these tumours, but that in a small proportion of cases the danger to mother and child was greatly increased. The risks during pregnancy might be summed up as follows : (1) Rapid increase in size of the tumour, causing severe pain and great distress ; (2) Incarceration of the tumour in the pelvis ; (3) Serious pressure on the bladder ; (4) Degeneration of the tumour through diminished nutrition ; (5) Excessive rotation of the pregnant uterus ; and (6) Abortion or premature labour as a result of pressure or of submucous development of the fibroid. Abortion or labour might be complicated : (1) By obstruction of the natural passages ; (2) By mal-presentations ; (3) By retention of the placenta or membranes ; and (4) By extrusion of the tumour during labour. During the puerperium the presence of uterine fibroids rendered septic infection more likely.

Opinions differ as to the frequency of cases in which fibroids seriously interfere with pregnancy and labour. In the discussion on Donald's paper, Herman and Spencer shared his views Duncan thought that the proportion of cases of serious interference was by no means a small one ; Horrocks remarked that miscarriage almost always occurred with interstitial fibroids, and that the abortion took place generally about the third or fourth month. Hammerschlag[2] reports 4 cases operated upon after delivery by Winter ; 2 aborted at the fifth month ; and 2 were delivered of a dead fœtus, one at the seventh month and one at term.

Operations during pregnancy.—When pregnancy is discovered associated with fibroids, one is always confronted with the anxious and difficult question whether the pregnancy should be allowed to go to full term, or whether some interference is necessary. We may interfere with the pregnancy by inducing abortion ; or with the tumour by removing it, with or without the uterus. The consensus of opinion is that induction of abortion is bad practice, because the risks are great and the

mortality high. This narrows down the courses that are open to us. Each case will be required to be dealt with on its merits. If no symptoms are present, and it appears likely that delivery will take place by the natural passages, it will generally be the proper treatment to leave the case to go to term. If no symptoms are present, but it appears likely that labour will be obstructed, we may either operate at once or reserve the case for Cæsarean section; and if the patient elects to run the risk for the chance of obtaining a living child, it is right to wait till term. This decision will be strengthened by the fact that if the tumour is not adherent or firmly fixed in the pelvis it will become lifted out of the pelvis in a certain proportion of cases, allowing of natural delivery. If, on the other hand, urgent symptoms are present, operation must be undertaken without delay; and we may then perform a myomectomy, in the hope that pregnancy may go on to term; or hysterectomy. The circumstances of the case will decide which of these two plans is to be adopted. Pedunculated myomata can nearly always be treated by the more conservative procedure; one or two interstitial tumours can sometimes be enucleated. Multiple growths, especially if interstitial, will usually require hysterectomy. Schülein[3] reported a case of a cystic myoma which he had enucleated from the uterus of a woman in the third month of pregnancy. The bed of the tumour was sewn up with catgut. The operation had been performed fourteen days before the specimen was exhibited, and pregnancy had not been so far interrupted.

Bland-Sutton[4] reported a case of enucleation at the fourth month in which the patient went to term; at the time of operation no other tumour was seen, but by the end of pregnancy the uterus was tuberose with fibroids. Emmet[5] strongly advocates myomectomy. He says that statistics before 1890 are of little value. Between 1890 and 1900 the reported cases of myomectomy in pregnancy amount to 44, the maternal mortality being 9 per cent, the fœtal 21 per cent. Since January 1st, 1900, to April, 1901, five cases of myomectomy in pregnancy have been reported (Doléris, Lewis, Muir Evans, Gemmel, and Emmet's case). In three delivery occurred at term; this fact is not noted in the remaining two, term not having been reached when the report was published. Emmet operated on a woman, aged 30, early in the fourth month. He removed nine myomata through eight incisions, closing the peritoneal surface of each incision with continuous catgut ligatures. In several incisions

the suture was carried deep down into the interstitial tissue. Bleeding was inconsiderable. Labour took place at term, and the child was delivered in twenty minutes, chiefly by two strong pains. The placenta and membranes came away spontaneously in the course of half an hour, the uterus contracted firmly. But owing to the force of the pains the cervix was torn and the perineum incompletely lacerated. The child was a healthy female, and, as well as the mother, was in good health six months after the operation.

Donald (*op. cit.*) described three cases of abdominal hysterectomy for rapidly growing fibroids in the early months of pregnancy, but he advocated a preliminary myomectomy whenever it was possible, as by this measure the life of the child might be saved. Cases of hysterectomy at the fifth month have been reported by Doran,[6] by Green,[7] and by Guillaume and Keiffer,[8] and one at three months by Bland-Sutton.[9]

Operation for obstruction during labour.—At this time several courses are open : (1) In certain cases it may be possible, after opening the abdomen, to remove the tumour, if pedunculated, and allow labour to be completed through the natural passages ; but I have not seen or heard of a case in which this was done ; (2) Cæsarean section is performed and the uterus is left, with its tumours, to be dealt with, if necessary, at another time. Thus Pershin[10] reports a case in which a tumour growing from the posterior part of the cervix nearly filled the pelvic cavity at the fifth month ; at the ninth the vagina was invaded. Cæsarean section was performed seven hours after the beginning of labour, and a live child over $7\frac{1}{4}$ lbs. was delivered. The fibroma then began to diminish rapidly ; within eight months after the operation it could not be detected by palpation. Donald (*op. cit.*) mentioned a case in which he had done a Cæsarean section, and subsequently a hysterectomy. (3) Cæsarean section is performed, and a myomectomy is carried out at the same time. Brodhead[11] describes a case of labour obstructed by a fibro-cystic tumour. After delivery by Cæsarean section the tumour was found to have a pedicle, and was easily removed. (4) Cæsarean hysterectomy is performed ; that is to say, the child is delivered and the uterus removed. This was the plan I adopted in a case I reported recently.[12]

Operation during and after the Puerperium.—Bland-Sutton (*op. cit.*) records a case in which hysterectomy was necessary about ten days after labour, on account of severe hæmorrhage

caused by an interstitial fibroid. Donald (*op. cit.*) performed a myomectomy some months after an abortion ; the latter was followed by serious septic infection. The four cases reported by Hammerschlag (*op. cit.*) were as follows : (1) The patient aborted at the fifth month of her first pregnancy, then an interstitial fibroid was detected. The temperature rose to 100·5°, and pains in the hypogastrium set in and continued for over six months ; then Winter removed the uterus successfully by supra-vaginal amputation. The tumour, as big as a child's head, adhered to the sigmoid flexure ; in separating the adhesion a little purulent fluid escaped. (2) The patient was delivered of her first child at the seventh month, and carried the second to term, but it was dead and macerated, and could not be delivered without craniotomy owing to obstruction from a tumour. A free discharge of blood continued for two or three months ; then Winter successfully removed the uterus by supra-vaginal hysterectomy. The fibroid lay in the upper part of the cervix and burrowed into the peritoneum ; it was nearly as big as a man's head, and showed necrotic changes. (3) The patient had borne a child eleven years before. A myoma of the size of a child's head was detected quite recently in the uterus to the right ; the patient became pregnant, and aborted at the fifth month. The placenta was extracted manually under anæsthetics. Much uncontrollable flooding set in, so that at the end of the fifth week after the abortion Winter removed the uterus by the supra-vaginal operation. The tumour was of the size of a man's head. It was in a necrotic condition, partly through endarteritis obliterans of its arteries. The patient recovered. (4) The patient had been delivered of a dead child by forceps at term six months previously. Much bleeding and fœtid discharge set in during childbed, and continued for six months, causing profound debility. The cervix was dilated, and a sloughy interstitial fibroid detected. Winter successfully removed the uterus through the vagina.

REFERENCES.—[1]*Obst. Trans.* Lond. 1901 ; Abst. in *Lancet*, Jan. 15, 1901 ; [2]*Monats. f. Geb. u. Gyn.* July, 1900 ; [3]*Ibid.* Dec. 1900 ; [4]*Lancet*, June 15, 1901 ; [5]*Amer. Gyn. and Obst. Jour.* June, 1901 ; [6]*Lancet*, March 2, 1901 ; [7]*Amer. Jour. Med. Sci.* March 16, 1901 ; [8]*Bull. de la Soc. Belge de Gyn. et d'Obst.* vol. ix, No. 5, 1900 ; [9]*Lancet*, Jan. 4, 1902 ; [10]*Vratch*, No. 5, 1900, in *Brit. Med. Jour. Epit.* April 6, 1901 ; [11]*The Post-Graduate*, March, 1901 ; [12]*Clin. Jour.* July 30, 1902.

FILARIA AND FILARIASIS. *James Cantlie, M.B., F.R.C.S.*

Development of filaria nocturna in mosquitoes.—G. C. Low,[1] whilst working in St. Lucia, West Indies, had opportunities of testing the time taken for the final metamorphosis of the embryonic forms of filaria nocturna in the body of the mosquito. He allowed mosquitoes to bite persons suffering from filariæ in the blood, kept them alive on bananas and brown sugar, and killed them as required. The results of his experiments may be summarized as follows: (1) On dissecting mosquitoes of the species *culex tæniatus* which had fed on patients in whose blood filaria nocturna were circulating, that after twelve to twenty hours many actively-moving filaria embryoes pervaded the muscles of the thorax; their long sheath had, however, disappeared. (2) In four and a half days after infection the embryoes appeared larger, and a fine cuticle, ending in a sharp point some distance behind the tail, enclosed them. (3) In seven and three-quarter days the embryoes became sausage-shaped, a mouth appeared, and a rudimentary alimentary canal. (4) After the ninth day the growth of the embryoes seemed to come to a standstill, and they subsequently began to degenerate. (5) On the seventeenth day only one out of ten insects could be seen, and these were either dead or dying. It seems to follow that the C. tæniatus is not an efficient host for filarial embryoes, and that in all probability it has nothing to do with the spread of filaria.

Experimenting with *culex fatigans*, Low found that in this insect the filarial embryoes went through a more rapid development, and by the eleventh day the metamorphosis was completed, mature forms being found in the head, neck, and proboscis of this mosquito, which therefore proves an efficient host. The variability observed in time of filarial embryoes reaching maturity in mosquitoes according to the data given by Manson and Bancroft[2] is in all probability due to the influence of temperature, as explained by James.[3]

The various facts accumulated on the subject would seem to show that: (1) Some mosquitoes are inefficient hosts, the embryoes never migrating from the stomach; (2) Some are partially efficient, the embryoes reaching the muscles, where they degenerate and disappear; (3) Some mosquitoes are efficient hosts; (4) The time taken for the embryo to reach maturity varies according to temperature and other climatic influences.

The intermediate host of filaria demarquaii.—Low,[4] experi-

menting with anopheles albipes, stegomyia fasciata, culex tæniatus, and culex fatigans reared from larvæ, found that these mosquitoes, when fed on a patient with the embryonic forms of filaria demarquaii in the blood, digested the embryoes, thereby preventing their migrating to the tissues of their intermediate host. Those four species, therefore, do not act as efficient hosts for the spread of this parasite, which must be brought about by some other insect as yet undetermined. Low also experimented with several other insects whilst in British Guiana, in the attempt to unravel the secret of how the *f. demarquaii* was conveyed from case to case. These included several other species of mosquitoes; and fleas (pulex irritans), and chiggers (pulex penetrans) were allowed to bite filariated persons; but all gave negative results as regards their power of proving efficient hosts.

In a subsequent publication[5] Low describes the embryoes of the *filaria demarquaii*, and states that although very small 0·205 to 0·208 mm. long by 0·005 mm. broad, they may be detected even with low powers of the microscope in the peripheral blood by day as well as by night. Their freely wriggling movement and their power to move from one part of the field to another distinguish them from *filaria nocturna*. In regard to the prevalence of the *f. demarquaii* in the West Indies, Low found that in St. Lucia the parasite was irregularly distributed, and that the inhabitants of the country were more largely infected with the filaria than those in towns. Of 472 persons examined, 4·87 per cent were found infected with embryoes of *f. demarquaii*. In Dominica two persons only out of 160 were found infected. In Barbadoes no embryoes of *f. demarquaii* were found in the blood of any persons examined. In British Guiana the parasite was found only in the blood of inhabitants of uncleared land, where as many as 64·4 per cent of the people were found infected with *f. perstans* or *demarquaii*. In St. Vincent the townsfolk were found free from the parasite, but in one village near the coast 26·6 per cent were infected.

Pathology.—The presence of the *f. demarquaii* in the blood seems to give rise to no clinical signs or symptoms; nor do the parental forms, which are usually located in the peritoneum, appear to give rise to any pathological disturbances.

Ozzard[6] describes a female parental form of the *filaria demarquaii*. The specimen measures $2\frac{1}{2}$ inches in length and $\frac{1}{100}$ inch in breadth. The male has not yet been found.

Daniels[7] gives in the following table some of the measurements and appearances of the different forms of filaria.

	Adult Females.			
	Filaria Perstans.	Filaria Bancrofti	Filaria Ozzardi	Filaria Demarquaii
	Mm.	Mm.	Mm.	Mm.
Length	70—80	85—90	81	65—80
Greatest thickness ..	·12	·2—·26	·21	·21—·25
Diameter of head ..	·07	·055	·05	·09—·1
Distance of genital pore from head	·6	·66—·75	·71	·76
Diameter at genital pore	·07	·14	·12	·1
Distance from tail of anal papilla.. ..	·145	·225	·23	·25
Diameter at anal papilla	·05	·1	·075	·07
Character of tail ..	Curved. Double terminal cuticular thickenings	Bluntly truncated. No cuticular thickening	Bluntly truncated. Slightly bulbous. No cuticular thickening	Curved. Rapidly diminishes in size just below anal papilla. Cuticular thickening over tip of tail
Diameter near tip of tail, before termination	·02	·06	·045	·03

Filariasis in Trinidad.—Vincent[8] states that of 500 persons examined indiscriminately in Trinidad, filarial infection was found to be present in the following proportions : Blacks, 4·9 per cent ; whites, 10·9 per cent ; East Indians, 2·4 per cent. Experimenting with *culex fatigans* he found the fully-developed embryoes appearing shortly after the sixteenth to nineteenth days in the tissues of the head and proboscis of the mosquito. He considers that other factors besides a high temperature have to do with the variability in time of the embryo attaining maturity in the tissues of the mosquito, and holds that the statement made by Grassi and Nöe that *anopheles* rid themselves of the fully-developed embryoes when made to feed on fruit, does not hold good for *culex fatigans*. Vincent found the *culex tæniatus* an inefficient host for filarial embryoes, but believes that the *anopheles albimanus* is an active agent in the spread of filarial disease.

PROPHYLAXIS.—That filariasis is transmitted through mosquito bites there seems now little doubt, and Vincent maintains that protection from infection in filarial countries means practically protection from mosquitoes. *Anopheles*, owing to their requiring special breeding places, there is a possibility of eradicating; but as the *culices* breed readily in any collection of water, this renders the accomplishment of the task of eradication more difficult. Still, although much may be done in this direction by protecting all stored water, etc., the only actual safeguard known is the habitual use of the mosquito net. Filariated individuals ought to be carefully protected from mosquitoes, as they, when bitten, become a local focus of infection to healthy persons.

Filariasis in Fiji.—Finucane[9] states that filariasis prevails all over the Fijian group of islands, and attacks every race. It is almost impossible to find an adult person free from elephantoid enlargement of some portion of the body in the coast towns of Ra province, and it is also a prevalent affection in the mountain villages. Every growing Fijian child suffers periodically from lymphangitis in some part of the body, and most Fijians are liable to four or five attacks of filarial fever annually, and possibly the formation of an abscess.

Filaria perstans.—Considerable interest has been aroused lately from the announcement that **Sleeping Sickness** was probably caused by the presence of *filaria perstans* in the blood. Sleeping sickness was supposed to be confined to certain regions of the West Coast of Africa, and up to a year or two ago that belief appeared tenable. Recently, however, reports of an ailment causing widespread mortality have been received from Uganda, more particularly in the neighbourhood of the Victoria Nyanza. Moffat[10] reports that up to the end of the year 1900 filarial disease was unknown in the Uganda Protectorate; and Cook[11] states that until four months before his letter, dated June, 1901, he had never met with a case of so-called sleeping sickness. Synchronously with the appearance of this disease, *filaria perstans* was observed in the blood of the inhabitants of this district, and they were associated in some degree as cause and effect. Again,[12] in the following year Cook communicated a paper on filariasis amongst the Baganda tribe in Uganda, and drew further attention to the fact that *filaria perstans* was not seen in the blood of inhabitants of this district until February, 1901, at which period also sleeping sickness appeared in an epidemic form.

Filariasis and elephantiasis.—Prout[13] in an article on "Filariasis in Sierra Leone" draws attention to the fact that in Sierra Leone the connection between elephantiasis and *filaria nocturna* in the blood is not proved. He shows that filariasis is a very common ailment in that district, affecting 21·4 per cent of persons examined; but states that the presence of elephantiasis may be placed at say 5 in 10,000 of the inhabitants. "The question of the relationship of elephantiasis to the presence of filaria nocturna in the blood appears to me to rest on a very slender and almost entirely theoretical basis. One of the principal arguments is that the distribution of nocturna and elephantiasis coincide, and that the one increases in the same ratio as the other. I venture to think that the present instance is one which militates strongly against this argument, for if the presence of filaria nocturna is the cause of elephantiasis, we should naturally expect that where the percentage of infection is so high the prevalence of elephantiasis would be greater than it is; and I am inclined to believe that as the geographical distribution of nocturna is more worked out, it will be found that it is more extensive than is supposed. I do not go so far as to take up the position that elephantiasis may not be due to nocturna; but it seems to me that the almost universal acceptance of this preconceived and unproved theory has had the unfortunate result of putting a stop to investigations along other lines."

Operative treatment of lymphangiectasis of filarial origin.—Maitland[14] refutes the theory that it is inexpedient or dangerous to deal with lymphatic varices surgically. He describes three cases of removal of enlarged groin glands in filariated patients, in which not only did the wounds heal well, but the attacks of fever and pain from which the patients suffered did not recur, and in one patient the disappearance of filarial embryoes from the blood was noted. In these groin masses Maitland found male and female parent worms, and from this fact, combined with the observation that fever and pain ceased and the embryoes were no longer met with in the blood, he argues "that the object in view in these operations is not so much the excision of the varix itself, as the removal along with it of the filarial worms themselves. Maitland assures us that neither lymphorrhagia nor lymphatic fistula followed the operations; nor was there any special tendency to septic inflammation or erysipelas. It is evident that an important method of dealing with lymphatic

varix has been added to our resources, and to Maitland and other Madras surgeons full credit is due. The good accruing from an operation of the kind is readily explainable on the supposition that all the parent worms are contained in the mass of glands removed, but Maitland suggests that, even where the parent worms are situated centrally to the mass of removed glands, "the stasis of lymph which follows ligature of the vessels results in the death of the parasites." This feasible and rational explanation allows us to hope that many of the conditions set up by filariasis may be not only relieved by a surgical operation, but that even the eradication of the disease may result.

REFERENCES.—[1]*Brit. Med. Jour.* June 1, 1901 ; [2]*Jour. Trop. Med.* Nov. 1900 ; [3]*Brit. Med. Jour.* Sept. 1, 1900 ; [4]*Ibid.* Jan. 25, 1902 ; [5]*Ibid.* ; [6]*Brit. Guiana Med. Jour.* 1902 ; reprinted in *Jour. Trop. Med.* Aug. 15, 1902 ; [7]*Jour. Trop. Med.* Dec. 1, 1902 ; [8]*Ibid.* Jan. 25, 1902 ; [9]*Lancet*, Jan. 5, 1901 ; [10]*Jour. Trop. Med.* Oct. 15, 1901 ; [11]*Ibid.* July 15, 1901 ; [12]*Ibid.* Aug. 15, 1902 ; [13]*Brit. Med. Jour.* Sept. 20, 1901 ; [14]*Brit. Med. Jour.* Jan. 25, 1902.

FRACTURES. *Priestley Leech, M.D., F.R.C.S.*

Tubby,[1] in a clinical lecture on this subject, says that it is difficult to draw the line between delayed union and non-union; *i.e.*, most fractures unite in time. The places where failure of the healing process occurs are, in order of frequency: The upper third of the femur, due to an excessive displacement of the fragments and the leverage of strong muscles ; the middle of the humerus, due to defective blood supply owing to the fibrous nature of the periosteum in the neighbourhood of the insertion of the deltoid muscle ; oblique fractures of the tibia ; fractures of both bones of the forearm and the lower jaw.

The causes are both general and local. The general ones are profound anæmia, both pernicious and that from malaria ; syphilis, pregnancy, phosphaturia ; scurvy and rickets are rare causes, but scurvy-rickets or Barlow's disease is a more frequent cause ; old age is not more prone to non-union. The local causes are more important, such as severe compound fractures with much comminution of fragments, followed by necrosis (this is frequently seen in gunshot wounds) ; defect of or interference with the local blood supply to the bone ; interposition of a piece of muscle or fascia between the ends of the bone. As regards treatment, if merely delay has taken place, do not operate immediately, but improve the general health, immobilize

the fracture, and wait ; in some cases massage skilfully applied may be of great value. It is well to examine the fracture from time to time with the **X-rays** ; it must, however, be borne in mind that newly-ossified callus remains for some time transparent to the X-rays.

Certain methods still quoted in text-books are to be avoided, *viz.*, injection of irritating fluids, acupuncture, the introduction of setons and of foreign bodies, and electrolysis ; the usefulness of rubbing the ends together, and of subcutaneous section of fibrous tissue, is doubtful. The methods which are of service are resection of the fragments and fastening them together by wire, screws, or a bone ferrule or plate, or transplantation of bone. The anatomical conditions will not always allow of a recourse to this method, or render the operation very difficult, *e.g.*, in the upper third of the femur. No operation of this kind should be lightly entered upon. Statistics show that in operations for pseudarthrosis of the femur one patient in five dies. In mal-union osteotomy is preferable to osteoclasis. Tubby says that non-union after osteotomy of the tibia and fibula for rickets occurs in a somewhat surprising proportion of cases.

REFERENCE.—[1]*Brit. Med. Jour.* Dec. 7, 1901.

FRACTURE OF SEMI-LUNAR CARTILAGES.

Priestley Leech, M.D., F.R.C.S.

Mayo Robson[1] says that a large proportion of cases of internal derangements of the knee joint are truly ruptures or fractures of either the internal or external semilunar cartilages, and this so frequently occurs in miners and quarrymen that it might not inaptly be termed *miner's knee*. The explanation is simple, and is dependent on the cramped position in which the miner follows his occupation, either kneeling or with the knees partly flexed. Now flexion and extension of the knee are always accompanied by some rotation, inwards during flexion, outwards during extension ; and during flexion the ligaments are relaxed, and the semi-lunar cartilages alter their relation with the femur and tibia, and if any sudden movement occurs, *e.g.*, sudden extension of the joint, the cartilage may be suddenly nipped. The removal of the cartilage is done through an oblique incision from the lower end of the patella downwards and backwards, so as to open the joint freely without dividing either the ligamentum patella or the internal lateral ligament of the knee. On retracting the edges of the incision and flexing the knee,

the displacement at once becomes manifest. At first he used only to **Suture** the cartilage in its place ; now he freely **Removes** it, and has seen no harm result from this. Out of 33 cases operated on, 21 were for fractured cartilages, 4 for loose cartilages, 8 for loose bodies in the knee joint. In 21 cases the internal cartilages were affected, in 4 cases the external, and in one case both internal and external were displaced. In only 7 of the cases was there no history of injury ; and all these, except one of loose cartilage in a woman, were cases of detached bodies in the joint. In all the semi-lunar cartilage cases except one, there was a clear history of injury. Nine of the patients were miners. All except one were men, mostly quarrymen or labourers.

REFERENCE.—[1]*Brit. Med. Jour.* April 12, 1902.

FRECKLES AND CHLOASMA. *Norman Walker, M.D.*

Weyner[1] gives his experiences of certain remedies. **Resorcin** produces scaling in six days. It requires confinement to the house. The **Naphthol-Sulphur** cure takes three days, and does not involve confinement at first, but when the effects are most manifest the patient must remain in, so that the resorcin is after all the shorter method. The naphthol-sulphur paste is applied from fifteen minutes to an hour daily, and **Salicylic Plaster** is used at night. The resorcin paste stays on day and night, and is therefore more convenient. There is more tendency to subsequent pigmentation after the resorcin. Resorcin produces some discomfort and a feeling of tension on the skin, and patients are sometimes depressed. The naphthol cure is not associated with this disadvantage. Resorcin has the advantage that it is more easily used in solution. He concludes that resorcin is better for hyper-pigmentation, and naphthol is better for comedones. As a depigmentary he mentions **Peroxide of Hydrogen** and **Chrysarobin;** the former is used as an ointment. It must be long applied, and the skin must be deprived of fat by vigorous washing before it is applied. Chrysarobin he uses in a $\frac{1}{4}$ per cent ointment. It certainly does depigment, but he is satisfied that the resorcin method is better.

REFERENCE.—[1]*Ung. Med. Presse,* No. 4, 1902.

FURUNCULUS. *Norman Walker, M.D.*

Petersen[1] reports a case of oriental boil treated by Finsen's **Photo-therapy.** He incidentally gives some interesting statistics of the spread of this disease, which confirm the general impression

that it is commonest on the legs and arms. The patient was an actress, in whom the disease was present on the nose, and she had contracted it in a region where the disease was prevalent. The diplococcus which has frequently been found was cultivated successfully. On account of the patient's employment, scraping was excluded, and it occurred to Petersen to try the Finsen light. There was considerable reaction, and treatment had to be often interrupted, but the improvement was steady. He suggests that it is a happy accident that the disease is most common in the tropics, for there the sun is available for the treatment, and there is nothing to pay for it.

Reference.—[1]*St. Pet. Med. Woch.* Feb. 22, 1902.

GANGRENE, EMPHYSEMATOUS.

Priestley Leech, M.D., F.R.C.S.

Corner and Singer made a valuable contribution on this subject to the Pathological Society last session.[1] Three distinct organisms have been found :—

(1,) *Bacillus œdematis aerobius*, an aerobic organism closely allied to members of the group of colon bacilli. It is a facultative anaerobe, develops readily on all culture media, and always produces gas of a disagreeable odour. It does not liquefy gelatin, and if an animal is injected there follows swelling, but without emphysema, and the trouble is not necessarily fatal. When other pyogenic organisms are admitted at the same time a rapidly spreading gangrenous cellulitis occurs. Out of 58 cases of emphysematous gangrene where a complete bacteriological report was made, this organism was found in ten instances, but always in conjunction with pyogenic cocci.

(2,) The *bacillus aerogenes capsulatus* (syn. *bacillus phlegmones emphysematosæ*) is the most important. It is an anaerobe first isolated and described by Welch and Nuttall, and shows many variations in its characters. Its virulence varies, and under certain circumstances it does not appear to be pathogenic. It is the most common organism in spreading gangrene, occurring in 48 out of 58 cases examined bacteriologically. In 14 cases it alone was present ; in the remaining 34 there was a mixed infection.

(3,) The importance of the *bacillus œdematis maligni* as a causative factor in emphysematous gangrene is to be doubted ; one group of cases reported by Chauveau and Arloing was due to it, but it has not been found in any recent cases.

The clinical symptoms vary. As regards treatment, that

consists in **Early Amputation,** getting well clear of the disease if possible ; if amputation has to be done through the emphysematous parts it is wiser to leave the flaps open.

A. Stolz[2] has a long article on gas phlegmon in men, which is accompanied by a pretty full bibliography of the subject. His conclusions are as follows : The Welch-Fränkel bacillus—an anaerobic, non-motile, butyric acid bacillus—plays the most important part in the causation of gas infections. It is, as Fränkel himself has shown, without doubt the creator of emphysematous phlegmona and abscesses containing air. More rarely a related species of a butyric acid bacillus, anaerobic and motile, is found, by Wicklein in three cases, by Stolz in one case. It is doubtful whether the bacillus of malignant œdema, which was formerly supposed to be the exciting cause of gas phlegmon, need be considered in this connection in man. Of aerobic bacilli there are undoubted infections with *proteus vulgaris hauseri.* and with coli bacilli and paracoli bacilli they have been recorded. It has been proved that the power of the latter to cause such infections is not limited to those suffering from diabetes.

References.—[1]*Path. Soc. Trans.* vol. liii, p. 42 ; [2]*Beitrage z. klin. Chir.* Bd. xxxiii, Heft 1.

GENERAL PARALYSIS. (See " Paralysis ").

GLAUCOMA. *E. H. Holthouse, M.B., F.R.C.S.*

Panas[1] has recently given his views upon glaucoma, especially as regards treatment. He recalls the fact that we do not really know in what precise way it is that **Iridectomy** exerts its good influence in glaucoma. The improvement has been referred to the opening up of the angle of the anterior chamber, although it has been shown that wherever the incision may be placed, and however completely the iris may be removed, the wound is always anterior to the true angle. He considers that the benefit gained is due less to the removal of a piece of iris than to the free opening of the ocular envelope, and that sclerotomy is of advantage for the same reason. But basing his idea upon the fact that in glaucoma the true angle of filtration is posterior to the base of the iris, he considers that results superior to those obtained from any other operation may be derived from a **Sclerotomy,** of which the chief feature should be an incision lying in the *posterior* chamber. In this procedure the point of introduction of the knife is defined as 2 mms. outside the limbus in the sclera, and 2 mms. above the tangent at the extreme

lower margin of the cornea ; if these points are attended to carefully there is very little risk indeed of injury to the lens. Out of ten glaucoma cases, two of which were hæmorrhagic and rather acute, eight being chronic, that were treated in this way, tension was definitely and permanently lowered in the two hæmorrhagic and one of the chronic, the others not being influenced in any way. Panas attributes the good results obtained in the three successful cases to the free escape of pent-up aqueous humour.

Treatment of glaucoma by removal of the superior **Cervical Ganglion of the Sympathetic** has received further illustration recently. A. L. Whitehead[2] reports a case in which this operation was performed where glaucoma had occurred as a result of sympathetic iritis, and had raised the tension to + 3. Reduction of tension and improvement in vision followed at once. In discussing the way in which the improvement is brought about, the writer states his belief that it is due, not so much to any change in the filtration angle by contraction of the pupil, but rather to the abolition of the control of the sympathetic over the vascular apparatus and secreting epithelium of the uveal tract, whereby the character and amount of the intra-ocular fluid are materially altered.

H. Work Dodd[3] relates a case in which both the superior cervical ganglions were removed, though not simultaneously. Improvement for the time took place, but tension recurred later, so that the permanent result was *nil*. Exactly the same course of events having been traced in a former case, this observer does not take so favourable a view of the operation as formerly.

REFERENCES.—[1]*Arch. d'Ophth.* Feb. 1902 ; *Ophth. Rev.* June, 1902 ; [2]*Lancet*, July 6, 1901 ; [3]*Ibid.* March 23, 1901.

GLOTTIC SPASM. *W. Milligan, M.D.*

In an examination of fourteen cases, Fischbein[1] found evidences of rickets in all. He regards the condition as brought about by auto-intoxication from the intestines, the various toxins acting on the peripheral ends of the vagus and causing a reflex spasm.

REFERENCE.—[1]*Jour. Laryng.* May, 1901.

GOITRE (Exophthalmic).

Graeme M. Hammond, M.D., New York.

After a series of experiments on rabbits and dogs Tedeschi[1] arrives at the following conclusions :—

(1,) Lesions of the restiform bodies (especially in their anterior portions) produce the symptoms of Basedow's disease.

(2,) In animals thus injured the symptoms are liable to recur in part, or in their entirety, even after they have disappeared.

(3,) In animals almost entirely deprived of the thyroid body, lesion of the restiform fails to produce exophthalmic goitre.

(4,) In animals in whom a lesion of the restiform resulted in the production of the disease, the excision of the thyroid caused either a diminution or a disappearance of the symptoms.

Booth[2] reports the ultimate results of eight cases treated by **Thyroidectomy.** Of these, six were permanently cured, one was improved, and one died. The cause of sudden death after or during an operation may be attributed to a faulty technique in removing the vascular goitre, as well as to the reduced vitality of the patient, whose heart has been weakened ; or to renal complications. The theory that it may be due to absorption of thyroid juice does not now seem tenable, owing to the care at present exercised in preventing this in the removal of the diseased part. In the case in which death occurred (forty-eight hours after recovery from the effects of ether) there was a history of an attack of diabetes, and a specimen of urine obtained while the patient was comatose showed a large quantity of albumin and a variety of casts. His conclusions are as follows :—

(1,) Cases of Graves' disease may be completely cured both by thyroidectomy and by bilateral section of the sympathetic.

(2,) In view of the fact that some cases are cured by internal medication, there must be a certain proportion in which the affection does not induce structural changes in any organ.

(3,) No theory can be regarded as adequate without taking into consideration the function of the thyroid gland.

(4,) Three factors must be considered in the production of the disease : (*a*) The central nervous system ; (*b*) The connecting fibres, sympathetic and vagus ; (*c*) The thyroid gland.

(5,) A lesion of one of these parts may produce a specific alteration in the others, the consequence of which, together with the exciting cause, may give rise to the symptoms of Graves' disease.

Belacescu[3] reports his investigations in regard to **Resection of the Cervical Sympathetic** in Basedow's disease, and states that this operation, causing section of the vaso-dilator, vaso-constrictor, and secretory fibres, results in atrophy of the goitre. This, in fact, occurs in every case. The various operations

are the following : (1) Simple division of the nerve ; (2) Ablation of the nerve by means of Jaboulay's operation, which, without a large incision, is devised to stretch and twist the nerve by means of artery forceps attached to its upper and lower ends ; (3) Simple stretching of the nerve ; (4) Partial resection of it ; (5) Partial and extensive resection ; (6) Total resection. The author considers that total and bilateral resection, known as Jonnesco's operation, is the most effective. The mere stretching, and even the simple division of the nerve, do not destroy all the connections of the sympathetic with the thyroid. The partial and extensive resection is applicable in only those cases in which the tachycardia is not pronounced. Although the direct surgical treatment of simple goitre by means of the almost total resection of the thyroid gland is not in itself a dangerous operation, in the struma of Basedow's disease it is very serious, and is accompanied by many disadvantages.

Dana[4] believes the primary disturbance of Basedow's disease is in the cerebral centres, especially those which control the nutrition of the thyroid and regulate the circulation. In all cases there is an almost uniform evidence of neuropathic personal and family history, showing these centres are constitutionally weak, and this weakness is increased by emotional strain and infection. Fevers, sepsis, operations, and pregnancy are often followed by this disease. It is particularly liable to follow typhoid. The author reports two autopsies after a rather acute course in each case, in which pathological changes were found in the cells of the pons and medulla, which leads him to believe that in well-marked cases these changes in the nuclei of the pneumogastric and other nerves are constant and important lesions.

References.—[1]*Rev. di Patol. Nerv. e. Men.* June, 1902 ; *Jour. Nerv. and Ment. Dis.* Nov. 1902 ; [2]*Jour. Nerv. and Ment. Dis.* Sept. 1902 ; [3]*Arch. f. Klin. Chir.* April, 1902 ; *Jour. Nerv. and Ment. Dis.* Nov. 1902 ; [4]*New York Med. Jour.* June 14, 1902 ; *Jour. Nerv. and Ment. Dis.* Nov. 1902.

GONORRHŒA. *J. W. Thomson Walker, M.B. Ed., F.R.C.S.*

General gonorrhœal infection.—Dr. W. F. Hamilton,[1] in an excellent paper on this subject, says that general infection takes place in a large majority of cases from the male urethra, and from metastases secondary thereto and yet localized, as in the prostate. General invasion may follow immediately upon the primary infection in the female as well as in the male, but it

would appear that general infection is not so common in the former as in the latter. It may be that greater resistance is offered to the general extension of the infection in the uterus, adnexa, and pelvic peritoneum, thus protecting the female against a general infection or gonorrhœal septicæmia or toxæmia.

While the uro-genital tract is primarily infected in the great majority of cases, it is now well recognized that a generalized infection may follow gonorrhœal ophthalmia. Twenty-three cases of joint affections secondary to purulent ophthalmia in infancy and childhood have been collected, 18 of which were in new-born and 5 in older children. The arthritis followed the ophthalmia in from two to three weeks. According to the conclusions based upon three series of cases reported by Bosnier and Julien, Gresolle and Gricolle, a generalized infection results in from 1·5 to 2·8 per cent of cases.

The pathologist explains the many and varied evidences of general infection as resulting from : (1) A direct infection with the gonococcus itself ; (2) A toxin—the gono-toxin ; (3) A mixed infection of gonococci and other pyogenic organisms.

In regard to direct simple infection with the gonococcus, there is now sufficient evidence to show that the gonococci circulate in the blood. The presence of the gono-toxin in the blood plays perhaps the most important part in the production of general symptoms. To this irritating toxin, it is stated on good authority, all the symptoms of generalized infection are to be referred. This statement is based upon experiments made on animals with the toxin, which resulted in local and general reactions characterized by inflammations, *malaise*, rise of temperature, and loss of weight.

Padrez, in 1885, and Drobney, in 1898, observed that in those cases in which the gonococci were found *within* the pus cells the disease ran a milder course than when the organism was free. It is claimed, partly on this ground, that the toxin inhibits phagocytic action, and thus affords an opportunity for widespread invasion.

It was believed at one time that pus was rarely, if ever, produced by the gonococcus alone, and that the presence of pus in gonorrhœa must be produced by the addition of pyogenic organisms. Since the work of Lang and Paltauf in 1893, and Bujivid, Trendell, and Young since that date, pyogenic properties have with good reason been ascribed to the gonococcus.

Dr. Hamilton gives a detailed account of 6 cases of generalized

infection, in all of which the joints were involved. In addition there was endocarditis in 1 case, peritonitis in 1, pleurisy in 2, iritis in 2, and double conjunctivitis in 3 cases.

H. Ullmann[2] has observed 5 cases of fatal pyæmia, in which 3 were certainly and 2 almost certainly due to gonorrhœa. Most of the patients were over fifty years of age, although one was only twenty-six years. In three of the cases the clinical diagnoses were typhoid fever, malignant tumour of the prostate, and purulent cystitis and septicæmia of doubtful origin. In the fourth case an acute epididymitis was incised, and two days later septicæmia set in, while the fifth followed acute gonorrhœal polyarthritis and ulcerative endocarditis. In the first four cases the autopsy showed the point of origin of the general infection to be a prostatic abscess.

Young[3] publishes a report of successful cultivation of the gonococcus from cases of arthritis, subcutaneous abscess, acute and chronic cystitis, pyonephrosis, and peritonitis. The best culture medium is "hydrocele agar," which consists of 2 parts of ordinary agar to which 1 part of hydrocele or ascitic fluid is added, the mixture being performed at a temperature of 40° C. Gonococci from different sources vary considerably in their culture characteristics. Some cultures maintain a vigorous growth after numerous transplantations, while others grow only two or three times or even only once.

Gonorrhœal infection of joints varies from the simplest rheumatic type to the most destructive arthritis. All of the ten cases in which cultures of the gonococcus were obtained were of such severity as to demand arthrotomy with irrigation of the joint. Many observers have believed that the gonococcus could not cause a connective tissue abscess, and it is only within the last few years that abscesses unconnected with tendon sheath infection, and due to gonococci, have been clearly demonstrated. Young reports one case in which four such abscesses situated in muscles in various parts of the body, occurred in a man with chronic posterior urethritis. The abscesses contained a thin reddish-brown odourless pus, and all gave pure cultures of the gonococcus. In four cases of subcutaneous abscess and in one case of general peritonitis the gonococcus was present in pure culture.

Cystitis complicating gonorrhœa has been considered by most to result from a mixed infection. In order to avoid any fallacy from carrying gonococci into the bladder by instruments

passing along the urethra, Young obtained the urine in cystitis complicating gonorrhœa by supra-pubic puncture. In five cases cultures were attempted by this method, but in only one was a growth of the gonococcus obtained, although in two other cases in which the culture remained sterile, gonococci were obtained in abundance on coverslip preparations.

The difficulty of obtaining cultures of gonococci from the urine is shown by the great variety of the reported cases. The principal reasons for this are the acuteness of the inflammation, and the fact that gonococci do not live in urine unless it contains a considerable amount of albumin. On the other hand, the gonococcus may be present in the bladder without producing cystitis; the production of cystitis probably depending not only upon predisposing causes, such as congestion, retention of urine, richly albuminous urine, etc., but also upon the virulence of the gonococcus present. The vast majority of cases of gonorrhœal cystitis are of short duration.

Pyelitis, pyelonephrosis, and pyonephrosis have frequently been observed to come on abruptly during acute gonorrhœa; but in no case have culture or coverslip preparations proved that the gonococcus was the sole cause of the ascending infection.

Bertrand[4] reports two cases in which he demonstrated gonococci in the blood, in general infection following gonorrhœa. According to Nicolaysen[5] the statement that the gonococcus will not thrive on pure agar can no longer be held, for he records two successful cultures of the diplococcus in this medium.

Etiology.—Fenney[6] considers that 20 per cent of the male and 5 per cent of the female population of America have contracted gonorrhœa. He considers that alcohol plays a very important part in predisposing the individual to infection. He has never had a gonorrhœal patient who was a total abstainer, and rarely one who did not admit an excess of alcohol at the time of infection. Perhaps the alcohol in the circulation or urine affects the resisting power of the urethral epithelium.

Diagnosis.—Janet[7] contributes a very interesting paper on the haunts of bacteria in the urethra, in which he gives much that is new concerning the congenital and acquired diverticulæ of the urethra, and their importance as culture grounds for gonococci and other bacteria. The paper is important in regard to the use of Janet's method of flushing the urethra in gonorrhœa; for if these bacterial nests are not recognized a complete failure may attend the irrigation method.

The author first gives a short description of the diverticulæ which may be found in the preputial sac, and the collections of bacteria which may be found in warts of the prepuce, glans, and urethra. At the edge of the prepuce, along the junction of the mucous membrane (*sic*) with the outer skin, there are sometimes small pocket-like depressions. He has seen as many as six of these around the prepuce (*Fig.* 13). Lanz[8] gives an



Fig. 13.



Fig. 14.



Fig. 15*a*.



Fig. 15*b*.

account of several cases of infection of preputial diverticulæ with the gonococcus, and describes the microscopic appearances of these. In one case the diverticulum was infected while the urethra escaped. The congenital para-urethral fistulæ and diverticulæ of the urethra and penis are very important, and the various forms are classified by Janet as follows :—

I.—In the Anterior Urethra and Penis.

A.—Cases with normal position of the orifice at the tip of the glans.



Fig. 16.



Fig. 17.



Fig. 18.

(1,) Pockets formed below the orifice through narrowing the same.

(2,) Median depression above the orifice. A small band may divide the orifice into two, so that above the band is the abnormal

depression, while below it lies the narrowed orifice. The depth of the depression varies, and it may also end in a second *cul de sac* (*Figs.* 14, 15*a*, *and* 15*b*).

(3,) Median para-urethral passages in the upper wall. These may exist as fine canals which either open in the upper commisure of the orifice or further back in the fossa navicularis (*Fig.* 16). The opening may be double (*Fig.* 17). When these canals are



Fig. 19.

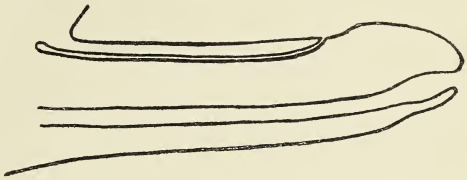


Fig. 20.

situated more deeply in the fossa navicularis they correspond to the fold of Guérin, and when more deeply still to the lacunæ of Morgagni (*Fig.* 18). The latter can only be regarded as para-urethral canals when they are very deep.

(4,) Combinations of the foregoing varieties may occur (*Fig.* 19).

(5,) Very rarely an accessory canal is found on the dorsum of the penis (*Fig.* 20).



Fig. 21.



Fig. 22.

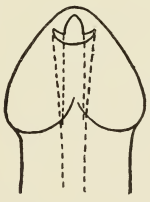


Fig. 23.

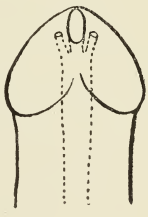


Fig. 23*a*.

(6,) Sinking in of the side walls of the fossa navicularis. This may either be transverse and lead to the formation of a complete or an incomplete diaphragm (*Fig.* 21), or it is vertical, and accompanies then the first grade of hypospadias. In hypospadias, as is well known, the orifice lies transversely instead of vertically. In the very first grade of hypospadias the orifice is almost normal in appearance, only it lies somewhat deeper and carries at its lower part two lateral horns (*Fig.* 22), so that an intermediate

stage between the normal vertical orifice and the transverse orifice of hypospadias is present. The side horns of the orifice are continued into the fossa navicularis as grooves, which gradually plane off into the urethra (*Fig.* 23).

(7,) Lateral para-urethral channels: (*a*) Forms corresponding to the above, the grooves being closed into canals (*Fig.* 23*a*). (*b*) Lateral channels corresponding to the lacunæ of Morgagni. They are less frequent than on the median upper wall, but are more frequent in hypospadias. (*c*) Dimples and blind canals which open on the lips of the meatus. They are often difficult to recognize, and are best found by lateral pressure, whereby a drop of serous fluid or pus is expressed from the very fine opening. Sometimes there is merely a dimple, in other cases a long canal ending in the neighbourhood of the frænum, and in suppuration may rupture here (*Fig.* 24).



Fig. 24.



Fig. 25.

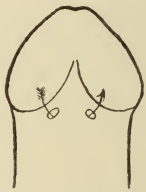


Fig. 26.



Fig. 27.

(8,) Para-urethral canals on the floor: (*a*) Blind channels opening at the lower commissure of the meatus. (*b*) Canals leading to a pocket under the frænum; such pockets are frequent, and readily suppurate during gonorrhœa, and tend to rupture outwards. From these pockets channels may go directly into the urethra, to the fossa navicularis, to the meatus, or to the outer skin (*Figs.* 25, 26, 27). (*c*) Fistulæ arising from peri-urethral abscesses, shown by the shortness of the track and the infiltration of the surrounding tissues.

(9,) Crypts and diverticulæ in the lower urethral wall, arising from suppuration in glands of Littré, either closed or open (*Fig.* 28), and, lastly, a large diverticala in the floor of the bulb as described by some authorities, and also the chance infection of Cowper's glands should be mentioned here.

B.—Cases with hypospadias.—One meets here the same anomalies, but they are more frequent and more complicated.

(1,) Para-urethral channels lying in the middle line. The

meatus opens transversely at the base of the glans, and above this lies a broad, somewhat prominent surface which corresponds to the dorsal wall of the fossa navicularis. In the middle line of this surface the median canals open, while the lateral canals open on both edges. The openings of the median canals number one to four, and the lowest is usually hidden in the urethra. The length of the canals is at most 3 or 4 mm. (*Figs.* 29, 30).

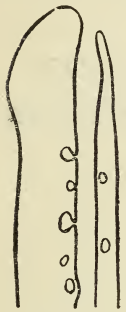


Fig. 28.



Fig. 29.



Fig. 30.



Fig. 31.

(2,) Lateral para-urethral channels (*Fig.* 31).

(3,) Lateral spaces. These are rare. They are large spaces which lie on either side of the hypospadias and extend laterally along the sulcus coronarius as far as the lateral surface of the penis. Sometimes they open widely into the urethra (*Fig.* 32),

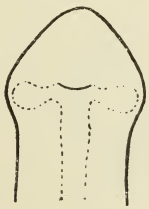


Fig. 32.

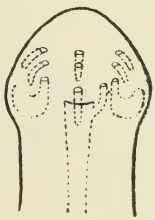


Fig. 33.

and sometimes they only open through the lowest of the lateral para-urethral channels (*Fig.* 33).

C.—*Strictures.*—The distension of the urethra behind strictures provides hiding corners for bacteria. Here the gonococci are readily removed by irrigation, but in infection due to other bacteria full dilatation of the stricture is necessary. Janet

explains this by the fact that the squamous epithelium of the stricture is an unfavourable nidus for gonococci, but a favourable one for other bacteria.

II.—Posterior Urethra.

The hiding places for bacteria are the sinus prostaticus, the ejaculatory ducts, the seminal vesicles, the prostatic glands. Anatomical anomalies are rare here, but the normal structures predispose to the formation of bacterial colonies.

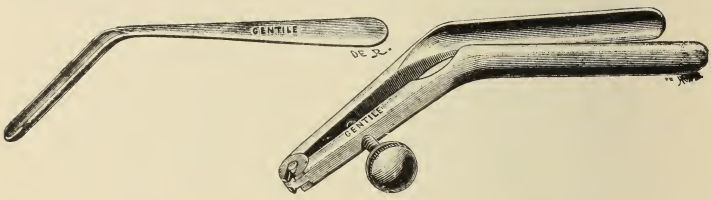


Fig. 34. *Fig.* 35.

Diagnosis.—In doubtful cases the best means of diagnosis of the anomalies described is pressure on the glans. If a droplet of pus appears, one endeavours to find the orifice with a fine stylet and to measure its depth. Then a sound is introduced into the urethra, and contact of the stylet with this shows a communication between the channel and the urethra. Assistance may be gained from various dilators (*Figs.* 34, 35, 36). Where

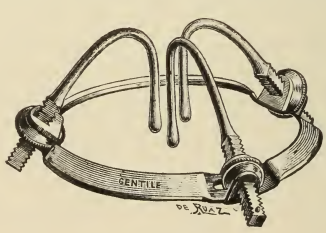


Fig. 36.

the diverticulæ are deeply seated one can convince oneself of the presence of a para-urethral channel by the appearance at the meatus of a drop of pus on lightly massaging the penis after micturition. Janet warns very strongly against this massage in acute cases. Where deeply-seated diverticulæ follow suppuration in a gland, the urethroscope is of value in diagnosis. When the prostatic glands are affected, diagnosis should be made by

examination of the secretion after massage of the prostate, but here also great care must be taken in acute cases. [The urethroscope is the most accurate and often the only means of diagnosis in deeply seated diverticulæ.—Ed.]

Pappenheim[9] found by staining with methyl-green and pyronin multinuclear and mononuclear round cells in the pus of acute gonorrhœa. Of the mononuclear round cells some showed the type of large mononuclear leucocytes and others the type of lymphocytes. As the disease became more chronic the mononuclear leucocytes, and more especially the lymphocytes, increased in number, the latter frequently forming chains and cell colonies. The mononuclear round cells were produced locally, and did not simply emigrate from the blood-vessels, and they showed that a regenerative reaction of the urethral tissues was taking place. The presence, and above all the number, of the mononuclear pus cells is an indication of the greater or less chronicity of the gonorrhœa.

Treatment.—Dr. Hamilton (*loc. cit.*), in discussing the treatment of *general infection in gonorrhœa*, says the chief indications are to lessen the toxæmia, and increase the patient's resisting power. Mild irrigations and injections should be given to the urethra and vagina. **Massage** of the prostate, **Lavage** of the bladder and urethra with boric acid solution, and deep injections of **Nitrate of Silver,** were given in a case of vesiculitis, cystitic and posterior urethritis. [These measures should of course be reserved for the more chronic cases—Ed.] Elimination of the toxin by the skin should be aided by **Hot Air,** while occasional mercurial or saline purgatives were administered. **Antistreptococcic Serum** was injected (three injections of 10 c.c.) in one case, on the supposition that mixed infection was aggravating the condition. "Whether any good effect can be ascribed to this treatment or not, must remain an open question. Yet the temperature showed a much more regular course, even after the first injection, and after the third settled to an average of 99·2° F., with signs of improvement about the joints." The patient's resisting power was increased by good diet. Quinine was used in a few cases, but probably only acted as a bitter tonic.

Dr. H. M. Christian gives some interesting data from a study of the case books of the genito-urinary dispensary of the University of Pennsylvania. In discussing the advance made during the past ten years in the treatment of gonorrhœa, the author states his belief that the more scientific treatment has

lessened the personal discomfort of the patients; but that little, if any, advance has been made in shortening the actual duration of the disease. The results obtained in chronic urethritis, however, under the more recent methods of treatment have been most gratifying. Every method of treatment had been tried at various times, but the most satisfactory was that now in use. It is worthy of repetition here as being a good and simple routine method of treatment.

During the first ten days or two weeks **Protargol** and **Permanganate of Potassium** were the two drugs used locally. Two separate solutions were made: (1) Potas. permang., ½ grain to 8 ounces; and (2) Protargol, 10 grains, to 4 ounces of distilled water. The patients were directed to flush out the urethra with six syringefuls of solution No. 1 three times daily, and this was followed immediately by the use of one syringeful of No. 2 solution, which was held in the urethra for ten minutes. After four days the permanganate solution was strengthened to 1 in 4,000 and the protargol to 1 per cent. After the second or third week **Bismuth, Zinc,** and **Lead** were used, a favourite combination being :—

℞	Zinc Sulphate	gr. x	Sol. Hydrast. (colourless)	℥ss
	Bismuth Subcarb.	ʒij	Distilled Water	ad. ℥iv

At this time **Copaiba** and oil of **Sandal Wood** were always given. Six or seven weeks was the usual time for complete recovery under this treatment. Chronic anterior urethritis due to stricture, or granular patches with sub-epithelial thickening, was treated by the passage of a sound three times a week, the withdrawal of the instrument being followed by an **Irrigation of Silver Nitrate** increasing in strength from 1 in 8000 to 1 in 1000. Chronic folliculitis involving the glands along the floor of the urethra was treated by the occasional introduction of a sound smeared with **Finger's Ointment** (Iodine, gr. v; Pot. Iod., gr. xxx; Ol. Olivæ, ʒss; Lanolin, ad ℥j). In cases of chronic posterior urethritis prostatic massage was preceded by irrigation with silver nitrate solution. Deep instillations of **Protargol** (3 per cent), **Sulphate of Copper** (2 per cent), or **Nitrate of Silver** (1 per cent) were found to be of great value.

The use of **Ichthargan** (a combination of ichthyol and silver) in the treatment of gonorrhœa was commented upon in the last issue of the *Medical Annual*, and its composition and use fully indicated. Dr. Moritz Fürst[11] has used this preparation in 75 cases of acute and chronic gonorrhœa, and he expresses

his approval of the drug. In his experience the best solutions and technique are as follows: When numerous gonococci are present a solution of 1 in 4000 is used, and later 1 in 10,000. These solutions are injected with an ordinary urethral syringe. Where the posterior urethra is affected, instillations of a 3 per cent solution are given. He also used bougies containing 1 in 1000 to 1 in 2000. The patients are given a 10 per cent glycerin solution of ichthargan, with the direction to apply a few drops beneath the prepuce and to the meatus. The drug is inexpensive compared with other similar preparations.

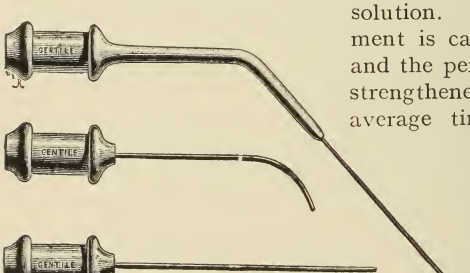
Lohnstein has treated 187 cases of gonorrhœa with ichthargan. In acute primary infections the urethra was irrigated daily with a warm solution of 1-4 or 5000 up to 1 in 2000. In acute cases where the attack was not the first, several injections were given daily of from 1 in 2000 up to 1 in 1000. In chronic gonorrhœa irrigations of 1 in 2000, or instillations or swabbing with 5 per cent solutions, were used according to the position of the inflammation. Of 124 acute cases, 105 were cured in from one to eight weeks with ichthargan. In 63 cases of chronic gonorrhœa, there were 32 with chronic infiltration of the anterior and posterior urethra, and of these 28 were completely cured, while 17 out of 22 cases of chronic prostatitis were also cured. Three patients with neurasthenia sexualis following coitus reservatus were cured by deep injections of ichthargan (1 in 3,000) combined with prostatic massage. Two cases of bladder tuberculosis still under treatment showed a diminution in the frequency of micturition under irrigation with 1 in 2,000 solution. The author expresses the opinion that while ichthargan is not in any sense a panacea, still it is a very useful drug in the treatment of gonorrhœa, for it is applicable at any stage and in any form of the disease.

A new combination has been added to the many used in the treatment of gonorrhœa, under the name of **Albargin.** This is a combination of gelatose with silver, which contains $7\frac{1}{2}$ or 15 per cent of the metal. Bornemann,[13] working in the clinic of Joseph in Berlin, has tried the remedy in 60 cases. In 18 of these complications occurred. Gonococci disappeared in from two to thirty-nine days, but in 2 cases were present after sixty days. The average strength of solution used was 1 in 500, with water as the vehicle. The special advantages claimed for it are deeper penetration without marked irritation, and cheapness.

Niessen[14] has used **Protargol** in 244 cases in soldiers, the

patients being at the same time kept in bed on a low diet for ten to fourteen days. Complications occurred in 34 per cent of the cases. From this experience he draws the following conclusions: (1) Protargol takes about the same time as silver nitrate to kill the gonococcus, *i.e.*, three weeks; (2) No discomfort follows the use of $\frac{1}{2}$ to $\frac{3}{4}$ per cent solutions; (3) Complications are not so serious as with silver nitrate; (4) In the gleety stage astringents are more valuable than protargol; (5) The disease is not cut short by the use of this drug.

Scherck[15] uses one of the following injections in acute gonorrhœa: **Mercurol,** 2 per cent; **Protargol,** 5 per cent; **Crede's Silver,** 1 per cent. Injections are made with a hard rubber blunt-pointed syringe until the anterior urethra is distended. The fluid is retained five minutes, and the urethra afterwards irrigated with 2 gallons of 1 in 1,000 permanganate of potash solution. The combined treatment is carried on twice a day, and the permanganate gradually strengthened to 1 in 500. The average time required for the destruction of the gonococci is, according to this author, six to ten days, and the total duration of treatment fourteen days. After the gonococci have disappeared the permanganate irrigations are continued alone. Internally a combination of **Cystogen** (gr. 5) and **Oil of Sandal** wood (♏10) is given in capsules every four hours.



a,b,c. Fig. 37.

F. Goldman[16] believes that the therapeutic effect of protargol depends on the **Method of Solution** of the drug. On concentrated solutions, which are usually kept as stock solutions, light and air produce an oxidation of the protein bodies, by which the fluid becomes dark. Freshly-prepared $\frac{1}{2}$-1 per cent solutions are yellow and yellowish-brown in colour. Heat should not be used in preparing the solutions, which should always be freshly made up with cold water, and dispensed in brown coloured bottles.

Janet[17] discusses the treatment of the various diverticulæ above described. The preputial sac is washed with **Sublimate Lotion** and warts removed. Several methods may be used in

treating diverticulæ and para-urethral channels: (1) Simple irrigation by means of specially constructed cannulæ (*Fig.* 37, *a,b,c*). The use of a short urethroscopic tube is necessary in some cases. (2) The formation of a counter-opening. In very fine, long channels, which are unsuitable for irrigation, and, on account of their position in the tissues of the glans, cannot

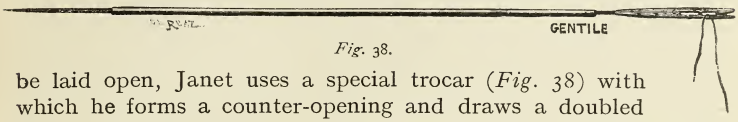


Fig. 38.

be laid open, Janet uses a special trocar (*Fig.* 38) with which he forms a counter-opening and draws a doubled silken thread through the channel. The thread is allowed to remain, and is frequently renewed. After a few days the dilated channel may be irrigated. (3) Cauterization. This produces rapid disinfection, but seldom leads to complete obliteration. The

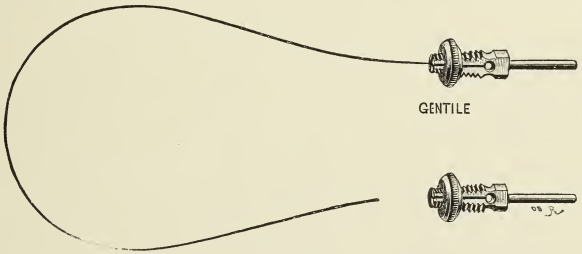


Fig. 39.

galvano-cautery is more useful than silver nitrate for this purpose. In blind para-urethral channels the endoscopic galvano-cautery of Kollmann is useful; if a counter-opening exists a platinum thread with two clamps (*Fig.* 39) is very useful. Where the wire touches the urethral mucous membrane it must be enveloped in cotton wool. Electrolysis is less useful, and only to be recommended in the deepest para-urethral channels. (4) Laying open the channels. This is undoubtedly



Fig. 40.



Fig. 41.

the best method. Weber's knife is very useful here (*Fig.* 40). In some deeply-seated diverticulæ the instrument shown in *Fig.* 41

is of use. (5) Total extirpation. This is only rarely possible in subcutaneous channels.

In conclusion, Janet refers to the treatment of inflamed glands, lacunæ, and follicles in the urethra and prostate. If the infection is due to the gonococcus it is not very resistant to treatment. There is little tendency to blocking of the inflamed gland duct, or if this does happen it soon opens again and the contents are discharged. He treats these cases by his irrigation method, and although healing may be somewhat delayed, it always occurs. After the acute stage is past, he combines light massage of the urethra and prostate with irrigation. Where glandular infection is due to other bacteria it is much more stubborn, and irrigation often fails. In these cases he uses the endoscope and electrolysis.

Goldberg[18] differentiates four types of gonorrhœal prostatitis: (1) Latent prostatitis with intermittent subacute urethritis anterior; (2) Subjective latent prostatitis with stubborn urethritis totalis; (3) Subjective acute prostatitis; (4) Chronic prostatitis in sexual neurasthenia. The first form is characterized by a persistent and constantly recurring anterior urethritis, which is only got rid of when the prostate is treated. In the second form also the prostatitis is not a prominent sign, but treatment of the gland is indispensable to bring about a cure. In the third group well-marked symptoms of prostatitis are present, and the gland is enlarged, hard, and tender. In the last group the urethritis is entirely obscured, but definite changes in the prostate may be present. Only in some cases is it possible to make a diagnosis by rectal examination; in other cases the prostatitic secretion must be expressed and examined.

The treatment of the first form of prostatitis consists in irrigation of the urethra with 2 per 1000 to 5 per 1000 **Protargol** solutions, or 1 per 4000 to 1 per 2000 **Silver Nitrate** solutions, and at the same time giving daily prostatic massage. The second form is more obstinate. Similar irrigations and instillations are used together with dilatation of the canal, while medicated enemata are used, and later prostatic massage. In acute prostatitis hot sitz baths and irrigation with ichthyol solution by means of a Nélaton catheter is used. The treatment of the fourth group is according to whether the local or general symptoms are most prominent. One should be careful to avoid meddlesome therapy, but must frequently take into consideration

the mental condition of the patient, who always desires to be locally treated.

REFERENCES.—[1]*Mont. Med. Jour.* Feb. 1902 ; [2]*Deut. Arch. f. klin. Med.* Bd. 69, s. 309, 1901 ; ref. *Cent. f. Harn. u. Sex. Org.* xii, Hft. 7, 1901 ; [3]*Jour. of Cutan. and Gen.-Urin. Dis.* June, 1900 ; [4]*Ann. de la Soc. Méd. Chir. d'Anvers,* Nov. 1900 ; ref. *Cent. f. Harn. u. Sex. Org.* xii, Hft. 9, 1901 ; [5]*Nord. Med. Ark.* Afd. ii, hl. 1901 ; ref. *Cent. f. Harn. u. Sex. Org.* xii, Hft. 7, 1901 ; [6]*Boston Med. and Surg. Jour.* Feb. 7, 1901 ; [7]*Ann. d. Mal. d. Org. Gen.-Urin.* No. 8, 1901 ; [8]*Arch. d. Dermat. u. Syph.* Bd. 55, 1901 ; [9]*Virchow Arch.* Bd. 164, s. 72, 1901 ; [10]*Therap. Gaz.* Nov. 1901 ; [11]*Deut. Med. Woch.* No. 14, 1901 ; [12]*Allg. Med. Cent. Zeit.* No. 80, 81, 1900 ; ref. *Cent. f. Harn. u. Sex. Org.* xii, Hft. 7, 1901 ; [13]*Die Therap. der Gegenw.* No. 3, 1901 ; [15]*Münch. Med. Woch.* March 19, 1901 ; [15]*Berlin d. D. Ph. G.* 1901 ; ref. *Berlin klin. Woch.* No. 20, 1901 ; [16]*Med. Rec.* March 6, 1901 ; [17]*Loc. cit. supra* ; [18]*Klin. Therap. Woch.* Hft. 617, 1901.

GOUT. *Bertram Abrahams, M.B., B.Sc., M.R.C.P.*

The *pathology* of gout is still the subject of much inquiry, both clinical and experimental. The principal researches coming under the latter head are those of Freudweiler.[1] In previous publications, dating from 1899, this author claims to have succeeded in producing—especially in rabbits—lesions corresponding to gouty nodules by the injection of aqueous emulsions of sodium biurate. He has now endeavoured to produce the experimental deposition of urate crystals in the tissues. He finds that injection of uric acid and its acid salts into the subcutaneous tissues of fowls and rabbits causes local inflammatory reaction—greater in the latter and with the sodium salt—ending in the absorption of the crystals by phagocytosis. Injection of the precursors of uric acid—such as xanthin and hypoxanthin on the one hand, and glycocol and ammonium lactate on the other—of urea, and of hippuric acid, produced tissue-necroses, local and diffuse, but no trace of crystal deposition. Freudweiler then produced an excess of uric acid in the blood, in the case of fowls by tying the ureters, in that of rabbits by injecting a solution in piperazin ; the subsequent injection of uric acid or urate crystals under the skin did not attract any of the excess from the blood. Nor was it possible in fowls with tied ureters to cause deposition of crystals by lowering the alkalescence of certain localities through the injection of dilute acid. When, moreover, necrotic areas were produced in these fowls crystals appeared, not in the seats of necrosis, but in the acute inflam-

matory zone surrounding them. Deposit of urate crystals was found to be generally associated with recent inflammation. When this is not present, Freudweiler suggests that it may be related to alteration in the saline content of the blood. His theory of gout is that the increased amount of uric acid in the body fluids gives rise to local inflammation, and that when the maximum of this coincides with the maximum amount of uric acid in the blood, crystalline deposition occurs.

His, jr.,[2] found that the artificial nodules produced by the injection of sodium biurate beneath the skin of rabbits became converted into true gouty tophi when usual doses of alcohol were repeatedly administered to the animals. In another paper[3] he shows that sodium biurate thus injected is eaten by phagocytes in eight to ten days, except in the skin, where it may persist for as long as three months. It causes more inflammatory reaction than calcium carbonate, and hence acts as a weak tissue-poison. His suggests that similar conditions occur in human gout, but that here the resisting power of the organism is exhausted and no reabsorption occurs. Kionka[4] has produced gout in fowls, without destruction of the kidneys, by feeding them exclusively upon meat. There were produced either acute joint-swellings with slight uratic deposit, or more chronic forms with tophi on the joints and tendon-sheaths. The gouty kidney also resulted. From 7 to 11 grains of uric acid were excreted daily ; the excretion was diminished 50 per cent by feeding with lime, in the form of powdered eggshells.

The synthetic formation of uric acid in the body has been studied by Weiner,[5] who fed birds and dogs on aliments containing no nitrogen, and at the same time injected urea into their vessels. Uric acid was found in the urine, particularly when bibasic acids containing three carbon atoms were given, without affecting tissue-metabolism.

Adler[6] holds that the gouty organism tries to protect or free its blood from the excess of uric acid, whence arise the acid sweats, diarrhœa, etc. When these fail, deposition occurs in the joints, etc. According to him connective tissue has a special affinity for uric acid and its salts, similar to that for calcium carbonate. Hager[7] adopts a different explanation. He considers that in gout there is disturbed metabolism, with retention of nitrogenous products, which lead to cell-necrosis. From the broken-down cells alloxur bodies and excess of uric acid escape into the blood, whence the latter is deposited.

Luff[8] supports the views of Roberts as to the circulation n the blood of a gelatinous and soluble quadriurate. Under certain influences, *e.g.*, the presence of sodium salts, deposition occurs and an attack of gout results. Deposition can be delayed by the use of potassium or—less effectually—lithium salts ; the influence of piperazin and lysidin is insignificant. According to Luff the alkalescence of the blood in gout is increased. Watson[9] for various reasons opposes the view that in gout there is excess of uric acid in the blood and excreta. He has not been able to find any diminished alkalescence of the blood, or lessened excretion of uric acid during an attack of gout. He states that there is no functional kidney paralysis, nor is the uric acid content of the blood greater in attacks than between them.

Gore[10] opposes the theory of uric acid excess in the blood, on the ground that this occurs in leukæmia without producing gouty manifestations. His theory is that a toxin derived from the alimentary canal, as the result of the growth of bacteria under conditions of altered alimentary secretion, alters the uric acid metabolism of the liver. According to him, colchicum and lead act in exactly opposed ways upon the functions of the alimentary canal.

Yeo[11] argues that both "regular" and "irregular" gout are due to hepatic inadequacy. He points out the frequent association of gout with gall-stones, its numerous gastric, hepatic, intestinal, and urinary symptoms, the ill-effects of certain climatic influences, such as sea and mountain air, and the therapeutic value of simple diet, all of which he connects with the physiological activity of the liver. He refers also to the influence upon the disease of calomel, alkalies, and sodium salts, all of which regulate metabolism and hepatic secretion.

Strümpell[12] states that the apparent increase of gout in Germany is mainly due to improved diagnosis. The three main etiological factors are heredity, alcohol (especially beer), and lead. Certain forms may closely resemble arthritis deformans ; the presence of neuralgias of the lower extremities, of arteriosclerosis, and of associated glycosuria and obesity, may be of assistance in diagnosis. Hadra[13] considers both gout and rheumatism to be due to the same causes, especially the combination of cold and wet, a toxic condition of the body fluids resulting from superficial affections.

Duckworth[14] maintains that the disease is "neuro-humoral" in origin ; the central neuroses playing a part in the causation

of disordered metabolism in liver and kidneys, from which the uricæmia results. Gemmel[15] states that a sharp distinction from chronic rheumatism and arthritis deformans is impossible. He divides gout into true arthritis urica and a typical arthritis uro-phosphatica. He believes that the sulphur of proteid food is largely concerned in its production, and that unneutralised sulphuric acid may act as the irritant which causes local necroses.

A number of careful investigations have been carried out upon the metabolism of gouty normal subjects under varying conditions. Vogt[16] finds that there is remarkable sluggishness of nuclein metabolism in the gouty. He took a case of acute gout, free from renal or other complications, and administered to it nuclein for six days before, five during, and four after an attack. The excretion of nitrogen, phosphorus, and uric acid was estimated throughout. During the attack the phosphorus balance was maintained, while there was notable nitrogen retention. The uric acid was markedly diminished in comparison with the excretion of phosphoric acid, especially when compared with a control subject. There was hence a simple retention of nuclein. Bain[17] on the other hand found that in a gouty patient the excretion of uric and phosphoric acids did not run so parallel as if the former had been derived from nuclein. Sodium salicylate caused a slightly increased output of uric acid and alloxur bases, while with guaiacum the excretion of the former was much increased, that of the latter not. Both were much increased by a vegetable diet, while colchicum, potassium iodide, and quinine had little or no effect. In another case[18] he found that during the administration of sodium salicylate the number of leucocytes fell, while the excretion of uric and phosphoric acids increased. He concludes that uric acid is not entirely derived from leucocytes, that of the urine coming partly from the food, and partly from the breaking down of cells. Colchicum, again, had little influence on the output of uric acid, while sodium salicylate increased it, but diminished that of alloxur bases. With thymus feeding the output of uric acid was much increased, that of alloxur bases somewhat diminished.

F. Billings[19] ennumerates a number of uric acid fallacies, which must be jettisoned before more accurate views can be formulated. Among the principal are: (*a*) That uric acid is toxic; (*b*) That it is a causative factor in any disease but gout; (*c*) That "uricacidæmia," meaning acid blood, exists; (*d*) That uratic deposits may be dissolved out by the administration

of alkalies; (*e*) That lithia is an uric acid solvent of unusual potency.

Haig[20] states that many of the symptoms of gout are due to increased blood-pressure and defective capillary circulation, the result of the excess of uric acid in the blood. He tests the capillary backflow, as an index of the circulatory conditions, by pressure of the finger on the back of the hand. A. S. Myrtle[21] relates a personal experience of gouty myositis; it was cured by electric baths.

Treatment.—P. F. Richter[22] has worked on the influence of drugs upon the uratic deposits occurring in birds, the kidneys of which have been destroyed by chromic acid. He finds that these can be prevented or removed by the administration of **Sidonal** or **Quinic Acid.** He holds that the efficacy of the former is due to the quinic acid, and not the piperazin which it contains. Salfeld[23] found that a grain of **Sidonal,** five or six times a day, cut short the pain and hastened the disappearance of the swellings in four cases of gout, but had no influence on one of acute rheumatism, Weiss[24] finds that alcohol and lemon juice have no effect upon the amount of uric acid passed, nor have peeled apples, but that **Unpeeled Apples** cause a diminution. He attributes this to the skins containing quinic acid, which he recommends in the treatment of gout. He considers lithia, piperazin, and urotropin worthless. De la Camp[25] is also a strong advocate of quinic acid, which he uses in the form of **Chinotropin,** though **Sidonal** and **Urosin** are also beneficial; all act favourably on gout, while diminishing the output of uric acid. In four cases of acute gout he found that the administration of chinotropin increased the output of hippuric without affecting that of uric acid. He deduces no opinion as to the relation of these acids; he does not maintain that chinotropin is a specific gout cure. Königschmied[26] warmly recommends **Urosin** as a specific which leads to the resolution of the most diverse manifestations.

Ten Cate[27] studied for eighteen days the metabolism of a case of chronic gout with tophi and interstitial nephritis. The total nitrogen output was variable, that of uric acid generally low. The latter, as Bain (*q.v.*) also found, was much increased by the administration of **Thymus,** without leucocytosis or increase in the excretion of phosphorus; it was unaltered by the administration of uric acid by the mouth, but increased by giving **Urotropin,** which the author thus believes to flush out the uric acid

deposited. Bain[28] insists that the essential feature of the gouty dietary should be moderation. Among drugs he recommends **Guaiacum** and **Potassium Iodide**; not alkalies, as the alkalescence of the blood is not diminished. He advises caution in the use of sodium salicylate, as it increases the output of uric acid.

Robinson[29] holds that it is impossible to lay down hard and fast rules as to regimen, which must vary with the individual, climate, etc. He believes that gout and rheumatism often cause appendicitis; if, therefore, operation is not urgently required, he resorts to anti-rheumatic and anti-gouty remedies. He believes these diseases to be responsible also for many ear and skin troubles.

Küster[30] gives an interesting personal experience of the treatment of gout with a tendency to obesity. Meat did harm; improvement followed the adoption of a mainly vegetable diet. In spite of all hygienic measures there was a tendency for an attack to follow any injury or indiscretion; it could always be cut short by **Colchicin Pills.**

Edmunds[31] recommends **Potassium** rather than sodium salicylate. In chronic gout and rheumatism he advocates acid tartrate of potassium as a drink. Many are the **Waters** lauded in the treatment of gout. Gemmel (*l.c.*) advises those of Salzschlirf; Kittel,[32] who has devoted himself largely to the study of chronic abarticular cases, the mud-baths of Franzensbad; and Sachs[33] the course at Carlsbad. Brandt[34] advocates "Nature's cure" of gout and chronic rheumatism, between which he holds that no sharp distinction is to be drawn. This consists in the internal and external use of alkaline thermal waters, with hygienic measures.

The treatment of muscular gout is discussed by Plique[35] and Grandmaison.[36] The former recommends the **Abstraction of Blood** in vigorous subjects attacked by lumbago. **Camphor** and **Chloral Hydrate** are frequently successful. Slight spraying with **Methyl Chloride** over a large area is often more efficacious than intense local action. In severe cases dry **Faradisation,** though painful, is effective. The cause must of course be treated. In prolonged cases **Oil of Turpentine** in capsules or emulsion seems to have some effect. Intra-arachnoid injections of a very weak **Cocaine Solution** give great relief, but are not free from danger.

References.—[1]*Deut. Arch. f. Klin. Med.* lxix, p. 155; [2]*Ibid.* lxvii, p. 618; [3]*Ibid.* p. 81; [4]*Berl. Klin. Woch.* No. 1,

1900 ; [5]*Med. Press,* Oct. 30, 1901 ; [6]*Deut. Med. Woch.* No. 6, 1901 ; [7]*Münch. Med. Woch.* No. 12, 1900 ; [8]*Brit. Med. Jour.* April 7, 1900 ; [9]*Ibid.* Jan. 8, 1900 ; [10]*Ibid.* Sept. 29, 1900 ; [11]*Ibid.* June 15, 1901 ; [12]*Münch. Med. Woch.* No. 38, 1900 ; [13]*Med. Rec.* Jan. 11, 1902 ; [14]*Lancet,* Aug. 25, 1900 ; [15]*Die Gicht,* Berlin, 1901 ; [16]*Deut. Arch. f. Klin. Med.* lxxi, p. 21 ; [17]*Brit. Med. Jour.* Oct. 28, 1900 ; [18]*Ibid,* April 4, 1900 ; [19]*Med. Rec.* Oct. 19, 1901 ; [20]*Brit. Med. Jour.* Oct. 28, 1900 ; [21]*Ibid.* June 9, 1900 ; [22]*Charite-Annalen,* xxv, p. 197 ; and *Deut. Med. Woch.* July 19, 1900 ; [23]*Münch. Med. Woch.* No. 30, 1901 ; [24]*Ibid.* June 25, 1901 ; [25]*Ibid.* No. 30, 1901 ; [26]*Wien. Med. Blätter,* No. 51, 1901 ; [27]*Mang. Dissert.* Göttingen, 1899 ; [28]*Brit. Med. Jour.* June 9, 1900 ; [29]*Med. Rec.* Nov. 10, 1900 ; [30]*Deut. Med. Woch.* No. 39, 1901 ; [31]*Brit. Med. Jour.* Feb. 2, 1900 ; [32]*Die Gicht. Ablag. in Mensch. Körper,* Leipzig, 1901 ; [33]*Die Gicht. Therap. in Carlsbad,* Berlin, 1901 ; [34]*Lancet,* Nov. 11, 1900 ; [35]*La Presse Méd.* July 20, 1901 ; [36]*La Goutte Musculaire et sa Traitement,* Paris, 1901.

GRAVES' DISEASE. (See "Goitre.")

HÆMORRHAGE (Gelatine Injections in).

Priestley Leech, M.D., F.R.C.S.

Grunow[1] gives his results in the extensive use of **Gelatin Injections** for the arrest of hæmorrhage. He used a 2 per cent solution in saline solution, and injected twice (?) 2 grams. (200 c.cm. = circa 7 ounces) in one or two sites. The hæmorrhage was caused by the following conditions : phthisis, gangrene of the lung, gastric ulcer, typhoid fever, hæmatemesis in hæmophilia, intestinal hæmorrhage due to leukæmia, etc., bladder trouble, aneurysm of the pulmonary artery. In all the cases except one he considers the treatment was beneficial. He does not find that the treatment is dangerous to life, but notes the following undesirable effects. Pain in the site of the injection, lasting from a few minutes to twenty-four hours ; fever (not exceeding 103° F.) ; urticaria, and circumscribed deep-seated swellings in the muscles. He concludes that (*a*) Gelatin injections exert some beneficial action in hæmorrhage of internal organs (*b*) The injections are accompanied by some unpleasant side effects ; (*c*) The injections must be continued until all hæmorrhage has ceased for a definite space of time ; (*d*) As the coagulating power of gelatin does not suffice alone to arrest bleeding in some cases, other hæmostatics should be combined with it.

Reference.—[1]*Berlin Klin. Woch.* Aug. 12, 1901.

HEADACHE. *Graeme M. Hammond, M.D., New York.*

The heavy, dull headache[1] situated over the brow and accompanied by languor, chilliness, and a feeling of general discomfort, with a distaste for food which sometimes approaches to nausea, can generally be removed by a 2-grain dose of **Iodide of Potassium** dissolved in half a wineglassful of water, and this quietly sipped, the whole quantity being taken in about ten minutes. In many cases the effect of these *small doses* has been simply wonderful. The rapidity with which the iodide acts constitutes its great advantage.

REFERENCES.—[1]*Mass. Med. Jour.*; *Pract.* Dec. 1901.

HEART, (Diseases of), *Alfred H. Carter, M.D.*

Cardiac failure.—Sir D. Powell[1] has given a thoughtful address on the more acute forms of failure. Recognizing the extreme complexity of the subject on its pathological side, he confines himself to its clinical aspects. He refers to it as resulting from rupture of aortic valve, embolism, over-taxation, acute disease, anginal trouble, tobacco, and epilepsy. After recalling some of the principal effects of cardiac failure from severe exertion, he points out that in estimating this condition in young people we must remember that the heart of the child is precociously developed, increasing fivefold in its volume during the first seven years of life. For this reason, between six and twelve years of age the apex-beat is commonly found (especially in boys) to the left of the normal, with a relatively strong impulse suggestive of hypertrophy. Such signs, apart from confirmatory evidence of irregularity in force and rhythm, languor, anæmia, breathlessness on exertion, and (sometimes) pain at the heart, are not necessarily to be regarded as morbid. He emphasizes the unfitness of young boys and girls for prolonged, fatiguing, monotonous exertion, while recognizing their special aptitude for short spells of active exercise. By way of treatment, a few weeks of complete **Rest,** and often many months of supervision, are required; but, provided no actual lesion has been produced, recovery is the rule. The younger the patient, the more rapid and complete is recovery. In older patients, on the other hand, recurrent attacks of cardiac irritability are often easily provoked for a long time afterwards. When exercise is resumed he prefers croquet, level cycling, golf, and easy tennis to more formal courses of training.

As a result of acute disease, such as pneumonia, enteric fever, acute bronchitis in old people, and bad attacks of asthma

heart-failure may come about with a gradual quickening of the pulse day by day till it becomes fluttering, confused, and running. In other cases, more often in stout, plethoric subjects with high blood-pressure, the failure may occur quite suddenly, with rapid breathing, pallor or cyanosis, sweating, mucous rattling in the chest, and almost imperceptible running pulse. With free stimulation and the subcutaneous use of **Strychnine** the patient may rally ; but relapse is common, and the result in old people is generally fatal. In young subjects the prognosis is much better. As indications for treatment he mentions the following : (1) Mal-oxygenated and otherwise contaminated blood-supply ; (2) Over-burdening of heart with blood—met by attention to secretions, the occasional use of **Mercurials**, careful limitation of the food in place of the over-feeding too often met with, in some cases a small **Blood-letting** by leeches, and the timely employment of **Oxygen** inhalations ; (3) and (4) Exhausted innervation and pulmonary obstruction (especially in pneumonia, advanced typhoid, and asthma). **Strychnine** is the most powerful cardiac tonic we know, and, subcutaneously used, is the best remedy for heart failure. In these cases, however, a frequent concomitant symptom is ballooning of the abdomen, and to give strychnine by the stomach in such cases is both dangerous and inefficient for the purpose required. In asthma, pneumonia, and in enteric fever it is often possible, in combination with the free use of oxygen and the occasional injection of strychnine, to give a sufficient subcutaneous dose of **Morphine** to procure some much-needed sleep. When the heart threatens to fail in asthma, the paroxysm must be thus shortened. In bronchitis, on the other hand, under no circumstances can morphine be so given. He has often observed cardiac exhaustion threatened in asthma through the want of small administrations of concentrated and assimilable food essences at intervals to support the patient. Alcoholic stimulants are, of course, necessary, the dose being adapted to suit the individual case. (5) The changes incidental chiefly to pyrexia in the heart muscle as a cause of failure, are mostly to be considered in the prolonged fevers, and will be best warded off by a judicious mitigation of the pyrexia. In cases where there is labouring action of the heart, and a tendency to cyanosis and stagnation of surface blood, much better results may often be obtained from **Hot Water** than from cold water sponging or cold applications.

Another form of cardiac failure is typified in the middle-aged,

plethoric man, who works hard, lives too well, takes but little exercise, and gradually acquires a fatigued and over-burdened heart, over-weighted with the heavy volume of blood it has to propel. He may get a spring or summer cleansing once a year at Homburg, Harrogate, or Carlsbad, but with no intermediate precautions he drifts along often into irremediable disease of heart or kidneys, or both. His first introduction to the physician is commonly after an attack of breathlessness and cardiac excitement or failure occurring on some unwonted exertion, after which he remains perceptibly short-breathed. His cardiac area is found to be extended, partly from a slight yielding, but mainly from precordial and interstitial fat. The first sound is weakened often to extinction, the second sound labouring; there may be slight albumin or a little sugar in the urine. If taken in time and placed under a depletory treatment, a restricted diet, with limitation of fluids, taken chiefly between meals, a great curtailment of alcohol and smoking, and well-arranged exercise, with insistance on deep, full inspirations from time to time whilst walking in the fresh air, such a man will be restored to health, and practically rescued from some early catastrophe in the form of heart failure in acute illness, or from drifting into chronic cardio-vascular disease. A few weeks' change away whilst getting inured to the treatment is of great value, and such cases will derive especial benefit from the Nauheim or modified Oertel treatment.

Dilatation and Hypertrophy.—A symposium lately appeared[2] dealing with these conditions as they occur apart from valvular disease, and mainly from the clinical standpoint, in which several well-known authorities took part. Clifford Allbutt first draws attention to the range of adaptation of the heart, which in his opinion is much greater than is generally supposed. He asserts that the left ventricle is capable of contracting upon at least five times the mean contents during bodily rest. He admits that an incapacity may be induced in a healthy heart by violent exertion, but ascribes it rather to a nervous derangement than to change in the heart muscle, or as a mechanical effect of dilatation. His experience points to the conclusion that so-called heart-strain essentially depends upon antecedent alteration of the heart muscle from anæmia, syphilis, alcohol, tobacco, tea, or dietetic errors, and is not produced by exertion alone, apart from some such conditions. He attributes the "beer-drinker's heart" partly to alcoholism and partly to excess of fluid ingestion.

With regard to treatment, he protests against attempts to train up a heart by exercise (as in Oertel's cure) without a careful preliminary enquiry for causes of trouble in the extrinsic conditions under which the heart is doing its work, and also as to the state of the cardiac fibre, its intrinsic services, and means of nutrition. In serious cases he prefers Swedish exercises (conducted in the open air) and resistance exercises, as admitting of more delicate gradation and adjustment to need. He concludes with some excellent remarks upon the close relation of old age and low blood-pressure, and the unfavourable significance of high pressure.

Sansom considers in great detail the methodical clinical diagnosis of dilatation, wisely premising that not every case where hypertrophy and dilatation can be established is to be regarded in the nature of a disease to be treated. His object is further to show that for purposes of treatment the condition of the heart should always be considered in conjunction with associated conditions, *e.g.*, nervous disorder, rheumatism, Graves's disease, arterio-sclerosis, and so on.

Burney Yeo thinks that the prevalence of cardiac dilatation nowadays is chiefly due to post-influenzal debility, over-exertion (especially in connection with cycling, football, and other athletic exercises), and excessive use of tobacco. He protests against the routine employment of any "system" of treatment, and warns against overlooking the pre-eminent value of rest. Like others, he lays stress upon a careful consideration of the conditions under which the dilatation has come about, with a view to their correction or removal. In dilatation after acute febrile and septic maladies **Digitalis** is generally necessary. He recommends the following prescription :—

℞ Ferri. et Ammon. cit.	gr. x	Sp. Ammon. aromat.	♏xv
Tinct. Digitalis	♏v	Inf. Calumbæ. ad	℥j

Ter die, post cibos.

In less serious cases the following is serviceable :—

℞ Quininæ Sulph.	gr. ij	Sp. Chloroformi	♏x
Tinct. Nucis Vom.	♏xv	Aq. ad	℥j
Ext. Coccæ fluid	℥ss		

Bis die, ante cibos.

In purely anæmic cases :—

℞ Ferri Sulph. exsic.	gr. jss	Aloin	gr. $\frac{1}{6}$
Pulv. Nucis Vom.	gr. j	Saponis	gr. $\frac{3}{4}$

Ft. pil j, bis die, post cibos.

In acute dilatation the hypodermic injection of **Strychnia** (gr. $\frac{1}{60}$-$\frac{1}{30}$) is often most beneficial. Free action of the bowels is very advantageous in nearly all cases. In extreme dilatation with advanced degeneration our chief resource must be absolute repose and careful attention to the general nutrition.

Caton reviews the different kinds of dilatation, with the general indications for treatment, laying special stress upon the importance of efforts for preventing heart-troubles arising in rheumatism by means of prolonged rest.

Collier, speaking from his own experience, says that heart-strain among university athletes is more common than formerly. He attributes it to temporary dilatation. With the cessation of vigorous exertion the prognosis is good ; but in his opinion the heart never quite recovers its original strength, and trouble is very liable to recur at any time from unusual effort, especially if combined with nervous exhaustion or excitement.

Eustace Smith deals with dilatation in childhood, and dwells on the frequency of its occurrence quite apart from valvular disease. In addition to over-exertion, he refers to rapid growth in conjunction with debility and anæmia, rheumatism, nephritis, broncho-pneumonia, infectious fevers (especially diphtheria) among common causes. In view of the rapidity with which acute dilatation may develop in rheumatism and diphtheria, he urges the importance of frequent regular examination. He agrees with Lees that extension of the cardiac dulness to one finger's breadth beyond the left nipple is serious ; and when it reaches to two fingers' breadth the danger is great. Vomiting is often the herald of fatal syncope in such cases. He advocates under these circumstances **Dieting** with milk, custards, strong soups, yolk of egg, and stale aerated bread or rusks, avoiding starchy puddings and fruits of all kinds. He considers that **Perchloride of Iron** and **Strychnia** are superior to other medicines, and that stimulants are often of great service.

Foxwell takes up the question of prognosis of dilatation, which he regards as especially difficult and perplexing. The most important points are the probable nature of the immediate cause of failure, its probable duration, and the prospects of removing it. The cases offering the best future are those arising from mitral regurgitation, and then (in order) aortic regurgitation, mitral stenosis, double mitral, double aortic, and tricuspid incompetence. The prognosis of cases occurring independently of endo- or peri-carditis is much less hopeful, because there is

nearly always degeneration of the myocardium. He divides such cases into two groups, according as the degeneration is primary, or secondary to arterio-sclerosis or nephritis. The latter group has the better prospects. Primary degeneration is rare.

Mitral obstruction.—Satterthwaite[3] has made an independent study of this condition, based on personal observations, and arrives at the following conclusions :—

(1,) Mitral obstruction is usually fatal before the age of forty is reached.

(2,) Females are little more prone to it than males.

(3,) There is apt to be a marked contrast between a strong cardiac impulse and a feeble radial pulse.

(4,) The true presystolic murmur occurred in 15 per cent of my cases. It comes and goes, but is usually inaudible in the last stage.

(5,) It is apt to have a loud rasping or sawing quality, but may be "gushing" or "whirring." It may also be faint or inaudible.

(6,) In about 40 per cent there is some sort of diastolic murmur.

(7,) These murmurs are best heard over a rather limited area, somewhat oval in form, having for its centre an area between the fourth left space, inside the nipple and the apex, and extending an inch or so to the right or the left. Occasionally this murmur is heard best as low as the fifth, sixth, or even seventh left space ; more rarely it is heard as high as the second left rib.

(8,) In 10 to 35 per cent there was a thrill over this area.

(9,) The first sound at the apex is short and abrupt.

(10,) The second pulmonary sound at the base is usually intensified.

(11,) Occasionally a murmur with the second sound at the base is heard over the left auricular appendix.

(12,) At first there is hypertrophy of the left ventricle. Then atrophy of it, with hypertrophy of the left auricle ; then follow dilatation and hypertrophy of the right heart.

(13,) Mitral insufficiency must to some extent accompany mitral obstruction.

(14,) In distinguishing the presystolic murmur of mitral obstruction from the Flint murmur of aortic insufficiency, we should rely on the "long heart" and the strong impulse, or the "Corrigan" of insufficiency, rather than auscultatory signs. In case there is both aortic insufficiency and mitral obstruction

a differential diagnosis is impossible with the means we have now at our command.

Aortic disease.—The presystolic murmur of aortic insufficiency has been subjected to careful analysis by Thayer[4] on the basis of seventy-four cases of aortic insufficiency established by *post-mortem* examination. He concludes that in uncomplicated cases of aortic insufficiency a rumbling, echoing presystolic or mid-diastolic murmur, limited to the region of the apex of the heart, is a very common occurrence when carefully looked for, in fully half of the cases. The characters of this murmur are in no way different from those commonly observed in cases of true mitral stenosis, with the exception that the murmur is usually of moderate intensity. It is, however, rarely associated with a tapping systolic impulse and a snapping first sound, which are the rule in cases of true mitral obstruction; while the pulse is large and characteristic of uncomplicated aortic insufficiency. In the absence of these sounds, and with a large pulse, the functional character of a presystolic murmur at the apex, associated with aortic insufficiency, is to be suspected, especially in cases in which there is no history of acute infectious processes such as are ordinarily associated with endocarditis, and in which there is evidence of well-marked arterio-sclerosis. A presystolic murmur due to aortic insufficiency may, however, be associated with many of the clinical features of a true organic mitral obstruction.

Syers[5] asserts that in at least 95 per cent the murmur of aortic insufficiency is heard much more loudly at the second left interspace close to the sternum than in the position usually assigned to it, namely, the second right interspace. He at the same time admits that the point at which the murmur is loudest is almost invariably the middle of the sternum. It is well known that such murmurs are often very soft and low-pitched, so they may be difficult to hear, and he thinks that it is just under these conditions that the prognosis is often worse. He therefore claims that it is of the greatest importance to carefully examine the region of the second left interspace even when the second sound is clear at the second right space.

Malignant endocarditis.—Two important papers have been communicated to the Royal Medical Chirurgical Society on this subject by Drs. Poynton and Paine,[6] and by Drs. Ewart and Morley.[7] In the former the authors claim to have established that certain cases of malignant endocarditis were truly rheumatic

in origin ; that a specific diplococcus was the cause of acute rheumatism ; that a diplococcus could be isolated from cases of malignant endocarditis, which could be grown in pure culture, and would reproduce the disease in rabbits ; that the diplococci from each source were the same ; that the rheumatic diplococcus would produce malignant endocarditis or rheumatism in rabbits. The diplococci of rheumatism and malignant endocarditis were alike acid-producing, which is interesting in connection with the well-known value of alkalies in this disease. The problem arose as to how much the specificity of rheumatism was dependent on the poisons formed by the micro-organism, and how much on peculiar tissue reactions ; and in this problem lay the explanation of the origin of the malignant type of the disease. Probably an analogous malignant character might in some degree belong to other rheumatic inflammations, such as pericarditis or arthritis.

The main object of the second paper was to show the fatal tendency of the disease if not treated. The chief remedy employed was daily inunction with a 20 per cent **Protargol** ointment.

Litten,[8] in writing on the same subject, recognizes a clinical distinction between benign and malignant endocarditis, dividing the latter into two groups—purulent and non-purulent. He confesses, however, that present bacteriological knowledge does not suffice to definitely mark off the boundaries of these varieties one from the other.

Wenckebach[9] recommends Credé's **Argentum Colloid** (collargol) as worthy of trial in malignant endocarditis. It can not only be used externally and internally, but it may be injected in a 1 or 2 per cent solution directly into the blood current without harm. He reports two cases in favour of its use.

Hale White[10] reports a case of malignant endocarditis which yielded Widal's reaction, although no such reaction was obtainable in the early stage of the disease. No typhoid lesions were found *post-mortem*. This is interesting in view of the difficulty sometimes found in distinguishing the affection from typhoid fever.

Fatty heart.—Hirsch[11] refers to the slip-shod grouping of all cardiac troubles in fat persons under the head of "fatty heart," although such troubles vary widely in different cases, *e.g.*, in one case short breath and palpitation on exertion ; in another, anginal symptoms ; while in a third group there are indications of dilatation and heart failure. He urges that these differences

cannot really depend upon one and the same lesion—a very sound conclusion, though not generally recognized. He reminds us that "fatty heart" results from many different heart maladies; that it may also occur under toxic influences of various kinds; that it is often found *post-mortem* without any manifestations during life; and that in very stout persons there is often no fatty-heart change to be found. Dr. Hirsch is doubtful whether fatty degeneration necessarily produces the death of the affected tissue, and thinks there is some reason to believe that it may not infrequently be temporary, and recovered from. With regard to the interpretation of the heart troubles in stout persons, he believes that they often arise from an incapacity of the heart to meet the increased work imposed upon it by the greater size and weight of the body. In the majority of cases, however, he believes that the symptoms of so-called "fatty-heart" are due to sclerosis affecting the coronary arteries. Dr. Hirsch's communication is of great interest, and suggests further study on similar lines of this difficult and hitherto neglected subject.

Cardiac neuroses.—Dr. J. K. Crook[12] treats upon the nomenclature and identification of cardiac neuroses. He refers to the following:—

Palpitation should be reserved for those cases in which it constitutes the essential feature of trouble, unaccompanied by discoverable cardiac or general disease.

Tachycardia should be applied only to those cases in which the increased frequency of the pulse is paroxysmal and well marked, although sometimes occurring as a complication of or in association with other conditions more serious or pronounced. There is no murmur nor other evidence of organic disease of the heart. The attacks end abruptly, and last from a few minutes to several hours or days.

Bradycardia, on the other hand, is always a secondary condition.

The *dyspeptic heart* is purely symptomatic. It may take the form of palpitation, increased action, neurasthenia cordis, arrhythmia, or pseudo-angina; and its identification depends upon the due recognition of the disorder with which it is associated.

Neurasthenia cordis is essentially a "weak heart," brought on by long-continued depressing emotions, frequent excitement, long marches, over-study, onanism, etc. It often follows convalescence from acute specific fevers, or is associated with

exhausting chronic disease. In short, it is a symptom of general neurasthenia.

The *irritable heart* is closely allied to the foregoing, but differs from it in that cardiac over-strain is a factor in its causation, and accordingly is frequently associated with dilatation.

Arrhythmia includes all forms of irregularity or intermission, occurring apart from cardiac or other organic disease; also *tremor cordis*—in which a quiet, steady heart is suddenly seized with a rapid fluttering, and the ordinary pulse suddenly drops to a mere tremulous thread, lasting for a few seconds and ending suddenly with an unusually forcible beat. The extreme degree of irregularity, intermission, and rolling-over sensation of the heart's action, known as *delirium cordis*, is not a true neurosis, and is only found in association with organic cardiac disease.

The *heart of Graves' disease* is a neurosis which is characterized primarily by its association with the other signs of Graves' disease; and secondarily by palpitation, increased frequency, and generalized throbbing of the arterial system.

With regard to *angina*, only the pseudo variety should be regarded as neurotic; true angina is always associated with organic disease. True angina occurs almost invariably in males past middle life. Every angina produced by effort is a true angina; every angina occurring spontaneously without effort is a false angina, except attacks which occur at night (Huchard). The absence of all signs or symptoms of organic cardiac disease creates a presumption in favour of pseudo-angina.

Pericarditis.—As the result of careful enquiry into the etiology of pericarditis, Preble[13] concludes that acute primary cases are rare. Diseases in which pericarditis appears as a complication are in order of their frequency: Pneumonia, 34 per cent; rheumatism, 28 per cent; chronic diffuse nephritis, 11 per cent; tuberculosis, 10 per cent; sepsis, 5 per cent; aneurysm, 3 per cent; typhoid, 1 per cent. The more extensive a pneumonia, the greater becomes the danger of this complication. With left-sided pneumonia the danger is the greater. Rheumatic pericarditis is complicated by endocarditis in 60 per cent of the cases. The danger of pericarditis complicating rheumatism is greater the younger the individual, and is somewhat greater among males than females. So far as acute pericarditis is concerned, the site and extent of the endocarditis is apparently of no importance. Pericarditis occurs with all forms of nephritis, but particularly with the chronic diffuse nephritis with contraction. Pericarditis

must be regarded as a rare complication of tuberculosis. The cases of obliteration of the pericardium are due to the following causes arranged in order of importance: Rheumatism, tuberculosis, chronic nephritis, aneurysm.

Edwards,[14] of Chicago, has written fully on the diagnosis of pericarditis; and Collins[15] contributes a good practical review of pyo-pericarditis.

Aporti and Figardi,[16] as the result of experiments on the cadaver, come to the following conclusions:—

(1,) Pericardial effusions can be demonstrated by percussion only when they exceed 150 or 200 c.cms.

(2,) 650 to 700 c.cms. is the maximum which the pericardium can contain. (This probably refers to the maximum amount which can be injected after death.)

(3,) With the patient on his back, the cardiac dulness extends in all directions proportionally to the amount of exudate. In the vertical position the dulness is more marked in the region of the apex beat and the cardio-hepatic angle. In the first case the anterior surface of the heart is only partly covered, and in the second case it may finally be fully covered.

(4,) In the horizontal posture the great vessels are surrounded by the exudate when present only in small amount, while in the erect position the base of the heart remains free even in the presence of a large quantity of fluid.

Pulmonary tuberculosis and endocarditis.—Those who are interested in the study of the clinical *relation* between these two conditions should consult an article by Anders,[17] which deals with the subject in considerable detail under the following heads: (1) Cases of endocarditis due to tubercle bacilli; (2) Cases of recent and chronic endocarditis associated with tuberculosis, but caused by other organisms; (3) Cases of chronic valvulitis preceding tuberculosis of the lung; and (4) The effect of right-sided valvular disease upon the development and progress of pulmonary tuberculosis.

Thoracic Aneurysm.—Lee[18] describes what may possibly be a new physical sign of this affection. The cricoid cartilage is grasped as in tracheal tugging, an assistant percussing the chest. When normal parts are percussed, the palpating hand feels a distant and feeble jar (proximal ends of the clavicles excepted), but so soon as the aneurysmal area is reached, a shock, which is both direct and resilient, is felt, and somewhat suggestive of the sensation experienced when a rubber bag filled with water

is simultaneously palpated and percussed. It is well to note if the sign is present when the patient is changed from the erect to the recumbent and lateral positions, and, if possible, the location of the aneurysm itself.

General treatment of valvular disease.—A good survey of the treatment of valvular disease during the period of compensation is published by Van Noorden,[19] and is worth perusal. He states the following conclusions :—

(1,) As to **Resting the Heart,** while recognizing the advantage of systematic moderate exercise, all hurry and sudden effort should be avoided. Another most important indication is the prevention of obesity ; but, on the other hand, the reduction of fat must be carried out gradually and with great caution. The diet should never be reduced below two-thirds of the quantity necessary to maintain the ordinary weight of the patient ; and routine diets should be avoided. Frequent and light meals should be preferred. A reasonably mixed diet. Moderate restriction of fluid drinks (especially during meals). So long as the limit of $2\frac{1}{4}$ pints *per diem* is not exceeded, the patient may generally take what he likes. Strong alcoholic beverages or strong infusions of tea or coffee should be avoided, but the moderate allowance of these (including tobacco) is not objectionable in those accustomed to their use.

(2,) As to **Exercise,** he considers that the stage of compensation is the most auspicious time for treatment of this kind. He divides the means at disposal into two groups, systematic muscular exercise and hydropathic remedies. Of the former he regards uphill walking as the most perfect form—slow and steady walking, deep and regular breathing, avoiding talking during exercise. He also approves of rowing (either in a boat or with a mechanical apparatus). Bicycling, tennis, and golf he considers less suitable, because they cannot be graduated and invite excessive efforts. Where uphill walking is not practicable he advises resistance exercises. Massage cannot take the place of active exercise in these cases, but is often a valuable adjuvant.

(3,) Among hydropathic measures the best is the carbonated brine bath (Nauheim). The more perfect the compensation, and the more recent the lesion, the more suitable is the case for such treatment. But those with whom compensation has just begun to fail often derive great benefit. Half-baths, the temperature of which is gradually lowered while the patient is sitting

in the tub, are also of great value, and may be carried out at home. They should be followed by energetic friction of the skin, conducted by an attendant and *not* by the patient. He speaks highly of electric baths after the method of Dr. Schnée.

Treatment.—*General treatment of cardio-arterial disease.*—Campbell[20] remarks that in one class of case the arterial condition is chiefly one of slight loss of resiliency, whilst the heart is hypertrophied and its muscle is beginning to fail ; the main indication is undoubtedly to save the work of the heart as much as possible. The heart beat is rendered irregular or intermittent on comparatively slight exertion, or as the result of over-distension of the stomach, the condition being often associated with a sense of oppression, distress, or with acute dyspnœa, and not infrequently with giddiness, and sometimes even with transient loss of power on one side. The diet should be strictly laid down, very little fluid should be taken at meal times, the necessary liquid being taken when the stomach is empty. The regular administration of small doses of **Nitroglycerin** is in these cases generally beneficial, and at the same time stairs and hills should be avoided, the patient's bedroom being preferably placed on the ground floor. At the commencement of the treatment a few days in bed is often of benefit ; but, subsequently, moderate exercise upon the level should be ordered. Baths should be avoided, their place being taken by sponging with warm water, friction being only moderately indulged in. Massage, resisted movements, and such-like treatment are strongly contra-indicated, as also the use of digitalis, strychnine, or other heart tonics. Attention to the bowels, as in all cases of cardio-arterial disease, is of the first importance.

In another class, in which the disease has commenced in the vessels, the hypertrophy of the heart having only come on in response to the increased resistance which it has permanently to overcome, the treatment should be quite different ; here the object is to increase the compensatory hypertrophy of the heart to a limited extent, and at the same time, as far as possible, permanently to lessen the resistance it has to overcome. In these cases the occasional exhibition of **Strophanthus,** with at the same time the regular use of **Potass. Iodide** in small doses, often gives considerable relief. If the case is met with early, much help may be afforded by the use of resisted movements, carbonic acid baths, and regular exercise slowly taken up gentle gradients. If gout is present, then that must of course be also

treated. If sclerosis of the kidney be also present, the blood pressure will naturally be especially high, and in these cases much good may result from an exclusively **Milk Diet,** continued for a long period, together with the administration of small doses of **Sodium Iodide.** Under this treatment the blood pressure may come down from 170 to 110 mm. of mercury with marked general improvement in the bodily health, and great amelioration of the depression and sleeplessness, which are often so difficult to combat. Alcohol is better either avoided entirely, or at most only allowed in very small quantities, in the form of well diluted whisky ; for the lowering of the blood pressure induced by alcohol, even when it does occur, is of such short duration as to be of no value from the point of view of treatment, and its effect upon the vessels themselves is undoubtedly deleterious.

Treatment of acute rheumatic endocarditis.—Caton[21] advises : As complete physiological **Rest** as possible for at least six weeks ; administration of **Sodium Iodide ;** and successive applications of small **Blisters,** followed by poultices, over the chest-part between the clavicle and the nipple. The patient should lie in bed with the head low, and not be allowed to leave his bed or to raise himself from it for any purpose. Sleep should be encouraged, pain prevented, and all mental excitement avoided, while the diet should be light and unstimulating. Heart tonics of all sorts should be avoided as harmful. It will be understood that the author uses the **Salicylates** in the ordinary way until endocardial trouble threatens, after which he combines it with **Sodium Iodide** until the rheumatic process—as such—may be regarded as having come to an end. In stating his results he divides his cases into two groups. The first consists of those instances, 61 in number, in which a probably recent *bruit* or murmur existed at the time of the patient's admission into hospital ; 41 left with apparently sound hearts, while in 20 the signs of valvular disease persisted. In 31 cases, on the other hand, the *bruit* and other signs of valvulitis came on while the patient was in hospital ; of these 28 left with an apparently sound heart, and 3 with probably permanent valvular disease.

Special Therapeutics of Heart Disease.—**Suprarenal Extract** deserves a place in the pharmaceutical treatment of chronic cardiac disease. It is not possible as yet precisely to formulate the indications for its employment, but from the observations of Floersheim[22] and others, good results may often be realised in cases of recurrent cardiac failure with

dilatation, a weak, irregular pulse of low tension, and bronchitic trouble which do not yield to rest and the usual cardiac tonics. It appears from two cases reported by Deaks[23] that the drug is especially applicable to cardiac failure in the aged, beginning with 3-grain doses three times a day after meals, afterwards increasing according to the effects obtained.

Graham Steel[24] refers to the marked benefit which is sometimes afforded in apparently desperate cases of chronic valvular disease by the hypodermic injection of **Morphia** and **Atropia.** He considers that paroxysmal dyspnœa in association with high arterial tension constitutes a special indication for its use. **Nitrites** and **Alcohol** may have given relief in earlier stages ; and it is when such relief is no longer obtained that morphia and atropia may be found helpful. He thinks that excessive accumulation of bronchial secretion is a stronger contra-indication than kidney disease. Some cases complicated with Bright's disease are even benefited by this treatment ; but the initial dose should always be small, and one must feel one's way to the dose that brings relief without risk.

Fornaca[25] speaks highly of **Bandaging the Legs** in certain cardiac cases. Flannel bandages are used, beginning more firmly at the foot, and proceeding with decreasing pressure to the top of the thigh. The application is for a short time at first, to ascertain the tolerance of the patient, but is repeated for longer periods, and more or less often according to the result obtained. For the success of this treatment it is absolutely necessary that the cardiac muscle should be able to respond to tonic treatment ; this method is then a valuable adjuvant. The results are better in mitral cases than in aortic ; in cases of severe myocarditis they are slight and transient. The only case in which Fornaca noticed intolerance was a myocarditis, in which the treatment produced temporarily a painful dyspnœa.

Lauder Brunton[26] raises the question of **Surgical Interference** in severe cases of mitral stenosis. Having been struck by the ease with which the constricted mitral orifice could be divided after death, he was led to undertake some experiments upon lower animals. As between enlarging the mitral orifice by elongating the mitral opening, or cutting through the valves at the middle, it was concluded that although the former was the better plan, the latter is the more easily performed. Instruments like tenotomy knives were employed, and it was thought better to enter the heart through the ventricle rather than the

auricle, in order to avoid hæmorrhage. The knife should be introduced during diastole, to diminish the danger of wounding the opposite wall of the ventricle. The pericardium should be not only opened, but also kept open. In the cadaver the heart was exposed by making two incisions from the left edge of the sternum outward to the left, the one along the lower border of the third rib, and the other along the lower border of the fifth rib, and connecting their outer extremities by a third incision, and dividing both the soft structures and the fourth and fifth ribs. The window thus made was forcibly reflected upon the sternum, the lung pushed back, the pericardium divided, and the knife introduced into the ventricle. If one desired to enter the heart through the auricle, it would probably be necessary to make an incision along the lower border of the second rib, although by pulling on the heart it might be displaced sufficiently to allow the introduction of a knife into the auricle, even if the incision were made at the lower border to the third rib.

Lauder Brunton[27] has found the **Commercial Nitrate of Potash** (saltpetre) much more satisfactory as a means of reducing blood-pressure in arterio-sclerosis than the pure drug as obtained from druggists, owing to the presence of a small proportion of nitrites.

Action of the iodides on the heart and circulation.—The **Iodides** are so frequently employed in aneurysm, arterio-sclerosis, and degenerative changes of the cardio-vascular apparatus, that their action upon the heart and vessels is a matter of clinical importance. Careful experiments conducted by Stockman and Charteris[28] clearly show that sodium or potassium iodides, given by the mouth in ordinary doses, have no depressing effect either upon the action of the heart or upon the arterial blood-pressure ; so that whatever benefit accrues from their administration in the conditions referred to (which is generally admitted) must be brought about in some other and probably more complex way.

Godlbauer[29] still believes, however, that the beneficial results of **Iodine** in arterio-sclerosis are primarily due to the vaso-dilating properties of this drug. In arterio-sclerosis the increased arterial pressure gives rise to a damming back of the blood in the heart and venous system. The tissues are therefore supplied with a smaller quantity of arterial blood than under normal conditions. By dilating the arterioles, iodine relieves this congestion and thus increases the nutrition of the tissues ; the increased supply of blood likewise favours the action of the lymphatic system and thus accelerates absorption. Furthermore, the coronary

arterioles are likewise dilated, and thus the nutrition of the heart is directly benefited.

The use of the Bicycle.—Rebuschini[30] has written an article on this subject. He says that the pulse may be raised to 150 or 200 per minute and the arterial pressure increased to 200 or 220 mm. as a direct result of the exertion. [The author appears to be dealing with exercise of unusual violence. In the present writer's experience it is rare for the blood pressure to be raised by ordinary bicycling above 150 mm.] Cycling produces a temporary acute dilatation of the heart, which by excess may become chronic. One must recognize a special tendency in cycling to lead its votaries unconsciously into excess ; and it is the abuse, not the use, which is harmful. The author defines moderate use as a speed of not more than ten miles per hour, a daily total of not more than forty miles on the level, and avoidance of long or steep ascents, or too high a gearing. The rational use of the bicycle never caused heart disease ; it must be forbidden to severe cases, but may be allowed under careful supervision in some slight cases (for example, young people whose myocardium and arteries are unaffected). More experience is needed as to the " dosage " of cycling which is beneficial in such cases, and one must recollect that for many individuals abstinence is easier than moderation.

[There is little doubt that bicycling is not so suitable an exercise in cardiac complaints as walking. The initial rise in blood-pressure is higher, and is much longer maintained than in walking ; the subsequent fall in pressure is not so marked, and it is more difficult to grade the exercise according to the needs of an individual.—A. H. C.]

Chloroform anæsthesia in cardiac cases.—Huchard[31] maintains that all patients suffering from morbus cordis, whether mitral or aortic, can be anæsthetised. The only contra-indication, according to him, is when the patient is suffering from toxic alimentary dyspnœa or from a very weak systolic action of the heart. In the latter case anæsthesia is possible, but in the former case the patient should be fed on milk diet so as to get rid of the toxæmia, before anæsthesia is undertaken. M. Huchard lays great stress upon the point that anæsthesia should be absolutely complete, especially in the case of patients suffering from morbus cordis. In these latter cases the principal danger lies in incomplete anæsthesia, so that all reflex action is not completely abolished, and reflex actions are the principal

causes of the sometimes fatal syncope which occurs under anæsthesia.

Influence of sodium nitrite on blood-pressure.—Since the invention of portable sphysmometers, such as those of Hill, Oliver, and Gaertner, definite measurement of blood-pressure is becoming more frequent, and the method undoubtedly often yields results of much practical value. H. S. Carter[32] has a paper on the subject, in which the following are some of his conclusions: Average normal mean pressure: males, 116 mm.; females, 113 mm. In acute nephritis pressure varies for the most part with amount of albumin in urine. Acute nephritis complicating an acute specific fever causes little or no increase of pressure. In chronic nephritis pressure averages about 62 mm. higher than in the acute form. It is only when arterio-sclerosis is extreme (apart from complications) that the pressure is materially raised. In aortic regurgitation pressure is low; if mitral regurgitation is also present it may be nearly normal. In anæmia it is always low. **Sodium Nitrite** is the best vaso-dilator; it acts in about twenty-six minutes; it reduces the pressure by 10-15 mm, and the effect lasts forty to forty-five minutes.

REFERENCES.—[1]*Brit. Med. Jour.* June 29, 1901; [2]*Practitioner*, Jan. 1902; [3]*New York Med. Jour.* May 10, 1902; [4]*Amer. Jour. Med. Sci.* Nov. 1901; [5]*Brit. Med. Jour.* June, 1901; [6]*Lancet*, April 12, 1902; [7]*Ibid.* April 26, 1902; [8]*Med. Press*, April 9, 1902; [9]*Ibid.* May 14, 1902; [10]*Brit. Med. Jour.* March 22, 1902; [11]*Münch. Med. Woch.* Nov. 1901; [12]*New York Med. Rec.* Feb. 22, 1902; [13]*New York Med. Jour.* Dec. 14, 1901; [14]*Med. Rec.* Feb. 8, 1902; [15]*New York Med. Jour.* Nov. 16, 1901; [16]*Therap. Gaz.* June 15, 1901; [17]*Amer. Jour. Med. Sci.* Jan. 1902; [18]*Amer. Med.* May 17, 1902; *Med. Rec.* May 24, 1902; [19]*Treatment*, May, 1902; [20]*Brit. Med. Jour.* Oct. 18, 1901; [21]*Ibid*, Oct. 12, 1901; [22]*New York Med. Jour.* May 11 and 18, 1901; [23]*Mont. Med. Jour.* Nov. 1901; [24]*Quart. Med. Jour.*; [25]*Rev. Crit. di Clin. Med.* Dec. 14, 1901; [26]*Lancet*, Feb. 8, 1902; [27]*Med. Rec.* May 17, 1902; [28]*Brit. Med. Jour.* Nov. 23, 1901; [29]*Münch. Med. Woch.* April 22, 1902; [30]*Gaz. Med. di Torino*; *Brit. Med. Jour.* Jan. 18, 1902; [31]*Lancet*, Jan. 18, 1902; [32]*Amer. Jour. Med. Sci.* Dec. 1901.

HEART (Surgery of). *Keith Monsarrat, F.R.C.S.E.*

The injuries of the heart which are of chief surgical interest and importance are those produced by firearms and caused by stabbing with some sharp instrument. The wounds which attend such injuries are either perforating or non-perforating. Perforating wounds are always attended by dangerous hæmorrhage;

non-perforating wounds may or not be attended by serious hæmorrhage. Wounds of either class may be complicated. The most important primary complication is penetration of the pleura and pneumothorax; the secondary complications are pericarditis, pleuritis, and empyema. Statistics of the results of heart wounds treated by conservative methods are available; Fischer states that out of 401 cases there were 43 recoveries, or 10·7 per cent; Laforgue gives 17 recoveries in 56 cases, or 30·3 per cent. In Laforgue's tables, however, many cases are included where the traumatism was but slight, and Nietert estimates that the mortality from wounds of more than slight gravity is 90 per cent.

Surgical intervention for wounds of the heart dates from 1892, when Manteuffel successfully treated a wound of the coronary artery and vein by ligature; suture of penetrating wounds of the heart dates from 1896, when Farnia placed three stitches in a wound of the right ventricle a quarter of an inch in length, with immediate success, but death on the sixth day from broncho-pneumonia. Of heart wounds surgically treated 44 cases appear to be recorded in the literature. Of these 5 cases are excluded from consideration, 4 of them being cases treated by gauze tamponing of the wound, a proceeding of which we have no means of judging the value, but which is obviously not to be relied on or likely to be of any benefit in cases where the wound is penetrating and where the hæmorrhage is serious. This leaves 39 cases for consideration. In 33 of these the wound penetrated the heart wall; in 3 penetration was doubtful; in 3 there was no penetration. Of the last, those where there was no penetration, 2 recovered and 1 died; of the doubtful cases, all recovered; of the 33 penetrating wounds, 24 died and 9 recovered. Thus the percentage of recoveries in the penetrating wounds was 27, the mortality 73 per cent. From a study of the clinical records of these cases the opinion is inevitable that the 9 patients who survived were saved by the operative procedure from certain death. Three fatal cases in the list died several days after operation, in which pericarditis appears to have been the chief cause of the fatal issue. Empyema was a complication in 5 cases, with 2 recoveries and three fatalities. Two illustrative clinical histories may be given :—

(1,) Case reported by Parrozani in 1897.[1] A porter, aged thirty-two, was stabbed in the seventh left interspace in the mid-axillary line. Shortly after the receipt of the wound he

showed symptoms of excessive hæmorrhage. An incision was made $1\frac{1}{4}$ inches from the margin of the sternum in the fourth intercostal space for $5\frac{1}{2}$ inches, and from the outer end of this a second was made at right angles to it in the mid-axillary line as far as the ninth rib. The pleura was divided in a horizontal direction, and the fifth, sixth, seventh, and eighth ribs, with the pleura attached, were cut through vertically and the flap raised. The cavity of the pleura was found to be filled with blood, and a wound 1 inch in length was found in the pericardium. This was enlarged to $2\frac{1}{2}$ inches. There was only a small amount of blood in the pericardial sac; this was removed, and a wound was then seen near the apex of the heart, $\frac{3}{4}$ inch long, from which blood escaped at each beat. A finger introduced passed into the left ventricle. Four sutures not passing through the endocardium were inserted to close the wound in the wall of the ventricle; the flap was replaced and sutured in position. The wound healed by first intention, and the patient made a good recovery.

(2,) Case reported by Fontan,[2] 1901. A soldier received a knife wound below the left breast. When seen two hours later his pulse was 120, respirations 40, and left pneumothorax masked the physical signs. Operation was at once undertaken; a flap with its base outwards was detached by cutting through the fourth, fifth, and sixth cartilages, and through the fourth and sixth ribs outside, the fifth being fractured. A small wound of the pericardium was enlarged, and a wound in the heart wall found near the apex, from which blood spurted at each systole. This wound was closed by three continuous stitches upwards and three downwards. The last stages of the operation consisted in removing clots from the pericardium and pleura, and suturing these membranes, and fixing the reflected flap in position. The whole operation took three-quarters of an hour. All went well until the sixth day, when a series of complications commenced. An embolic infarct of the right lung gave rise to a limited pneumonia; this was followed by an empyema, which necessitated thoracotomy; and phlebitis of the right leg occurred later. Recovery was, however, eventually perfect.

In the majority of cases the operation has been one of great urgency, and the patient in imminent risk of death, both from hæmorrhage and from embarrassment of the heart's action from the clots in the pericardium. No single procedure for exposing the heart is applicable to all cases; an endeavour in

each case is made to expose freely that part where the wound in the organ is expected, judging from the position of the external wound. Most surgeons appear to have judged it necessary to reflect a flap including three ribs with the intervening muscles. This flap has been reflected upwards, inwards, and outwards; Ninni divided the third, fourth, and fifth ribs close to the sternum and in the mammary line, and turned the flap upwards; Parrozani turned back the flap on the hinge of the rib cartilages after cutting the ribs externally; Fontan made the base of his musculo-osseous flap external. From the point of view of the vascular supply it would appear advisable that the base should be lateral; Ninni recommends his method chiefly from studies on the cadaver. The question of the treatment of the pleura now arises. Lorenz[3] considers that the use of the chisel and saw without first endeavouring to detach the pleura and to protect it with the finger is hazardous. The point is not of so great importance if the pleura is already wounded, and if there are definite signs of pneumothorax. In less urgent cases, such as those in which operation is called for by increasingly serious symptoms after some hours or days have elapsed, it is possible to treat the pleura deliberately and avoid damage to it; in these cases, too, a rather less free exposure of the heart is called for than in the urgent cases, where free access to the wound is of the first importance. Under such circumstances Lorenz recommends exposure of the fascia intrathoracica in the third interspace over the internal mammary vessels; by working from this point the pleura can be, without much difficulty, stripped from the inner side of the flap. When the pericardium is exposed the wound in the membrane is found and enlarged, any clots interfering with the view of the heart are turned out, and the wound sought for. Its probable position will have been estimated before the operation, and if a good view is obtained the matter will be decided by the jet of blood spurting out at each systole. Of thirty cases in the list above referred to in which the site is mentioned, it was on the right side in 15, on the left in 16; but general statistics show a preponderance of right-sided wounds. The wound having been found, it has now to be closed. There appears to be no reason for giving particular preference to one suture material. The placing of sutures in an organ continuously moving must always be difficult; it has been found, however, that the heart will stand a considerable amount of interference. Fontan seized the apex with a pair

of Kocher's forceps and brought it forwards; tumultuous movements were set up by the traction, but it is stated that they did not sensibly aggravate the state of affairs. Watten[4], by the use of two fingers in the pericardial sac, contrived to bring the heart forwards and steady it; the view may be improved by a suture in each side of the pericardial sac used as a retractor. Elsberg[5] has performed some interesting experiments which, although done on the heart of the rabbit, may guide in suturing the human heart. He found that non-penetrating sutures, *i.e.*, suture of the epicardium and a small layer of muscle, bleed less and are less likely to tear than those embracing much of the muscle, which tears and is apt to rend the epicardium also. He finds that the sutures should be tied in diastole, since if this is done in systole the next diastole will cause the suture to tear through the muscle. There has been some difference of opinion on this point. Fontan, in his second case, found it of little importance, the matter of chief moment being to profit by the instant when the wound presents itself most favourably to the hands of the operator, and to take care that the sutures do not penetrate the endocardium. Sherman[6] considers that the advice to apply the sutures in diastole is of no practical value, as even the most rapid operator, he says, could not apply a stitch during a single diastole. The following details of Breuner's[7] case are instructive. This surgeon found that his sutures tore through the muscle, and that the attempt to obtain approximation with stronger silk passed deeply into the wall failed, and the linear wound was converted into an irregularly circular opening; all attempts to close this were in vain, and the patient died on the table.

After the closure of the wound the pericardium is further cleared of clots, and the wound in this membrane and any wound there may be in the pleura sutured. The pleura is, as a rule, already damaged by the original wound, and may also be torn during the operation. All operators have not closed the wounds without drainage; in Watten's case the wound involved the right pleural cavity and was complicated by pneumothorax of this side; the external wound was in the fourth right interspace, 2 cms. from the sternal edge, and a flap was turned outwards after section of the cartilages. After suturing the heart wound, two strips of iodoform gauze were left in the pericardium, and sterile gauze was placed in the lower part of the pleural cavity. On the next evening there were alarming symptoms, which

immediately disappeared when, on removing the gauze strips, about 100 c.cms. of bloody serum escaped from the pericardial sac ; a fresh strip of gauze was introduced, and this drainage was continued for a week, with ultimate success. This question of drainage must be decided on the merits of each case ; in several of the successful cases it was not employed, and if unnecessary the advantage is obtained of excluding further risk of sepsis. The last step in the operation is the fixing of the musculo-osseous flap in position and the suturing of the skin.

REFERENCES.—[1]*Lancet*, vol. ii, p. 260, 1897 ; [2]*Bull. de l'Acad. de Méd.* March 18, 1902 ; [3]*V. Langenbeck's Arch.* Bd. lxvii, Hft. 2 ; [4]*Deut. Med. Woch.* No. 37, 1901 ; [5]*Beitrage z. klin. Chir.* Bd. xxv, Hft. 2 ; [6]*Lancet*, June 26, 1902 ; [7]*Wien. klin. Woch.* No. 11, 1901.

HERNIA. *Walter G. Spencer, M.S., M.B., F.R.C.S.*

As a result apparently of the frequency with which operations are performed for the cure of hernia, cases of strangulation seem to have diminished in number. At least, this is the case if we compare hospital statistics with those of former days. This cure should be done on children whenever the truss does not properly retain the hernia, and when, after wearing a truss for a year, the hernia is not cured. Indeed, anybody who reaches five years of age with a hernia should be treated by operation.

In adults any hernia which cannot be properly retained by a truss, should with absence of special contra-indications be cured. Indeed the cases suitable for treatment by trusses are those in young men, which are easily and completely retained by a light truss, for then it may be hoped that the tendency will disappear. Whilst generally old men are also suitable for the application of trusses, many can be successfully treated by operation, and if there is any danger of strangulation supervening it is wiser to advise this.

As regards operation, the chief difference seems to be in the suture material used, the various methods of operating tending to run into one another. Some recommend non-absorbable ligatures, such as silver wire or silkworm sutures, but silk or kangaroo tendon appears more generally suitable.

Lumbar Hernia.—Webb Jones[1] states that lumbar hernia is of rare occurrence, usually secondary to an inferior abscess, but in his case the history was negative. There was a scar over the prominence of the hernia, but Jones attributed this to a superficial incision only. The right lumbar region presented a roughly oval

tumour, somewhat irregular as if formed partly by fat, but largely reducible, with a distinct gurgle and a marked cough impulse. In the left lumbar region there was apparently a small fatty lump, and also the patient had a left inguinal hernia. The symptoms had been those of threatened strangulation. Through an oblique incision the external oblique and the latissimus dorsi were retracted, the lumbar aponeurosis divided, and a large mass of fat exposed, connected with a dilated and thickened ascending colon, partly constricted by irregular bands. The fat was removed, the colon reduced, the external oblique and latissimus dorsi united, and the skin sutured. Healing followed. The case thus seems to be one of sub-peritoneal lipoma inducing a hernia, a mass of sub-peritoneal fat followed by a protrusion of the colon outside the peritoneum, so there was no complete sac, only a partial dragging outwards of the peritoneum. The fibrous bands formed by the lumbar parietes would favour strangulation.

REFERENCE.—[1] *Lancet*, 1892, ii, 747.

HERNIA IN CHILDREN (Inguinal). *Keith Monsarrat, F.R.C.S.E.*

The opinion appears to be steadily gaining ground amongst surgeons that the treatment of inguinal hernia by truss is unsatisfactory, and that the radical cure by operation is to be preferred in the great majority of cases. This opinion is fortified by the experience that radical cure is an eminently satisfactory proceeding during the early years of life, and that recurrences are rare even after simple procedures which have proved unsatisfactory in the case of hernia in adults. Mr. R. Hamilton Russell[1] gives the following conclusions based on a study of this condition : (1) Oblique inguinal hernia is invariably caused by the presence of a congenital sac, which in the vast majority of cases is provided by patency of the whole or a portion of the processus vaginalis ; (2) There is no evidence in favour of the view that congenital weakness of the abdominal wall in the inguinal region is a factor in the causation of inguinal hernia ; (3) While actual weakness of the abdominal wall in the inguinal region is frequently met with, and is an occasional cause of recurrence after operation, it is not congenital, but is an acquired weakness due to the existence of the hernia and the use of a truss during a lengthened period ; (4) Complete removal of the sac, when performed before the abdominal wall has sustained such damage, will not be followed by recurrence ; (5) The causes of recurrence after

operation are three in number: (*a*) The above-mentioned acquired weakness; (*b*) Incomplete removal of the sac; (*c*) Traumatism, the result of misguided methods of operating.

The most important point in these conclusions is the opinion that any weakness of the abdominal wall that may be present in hernia is not congenital, but is due to the long-continued presence of the hernia, and possibly to truss pressure. Mr. Russell advocates early operation, and simple but complete removal of the sac. These opinions are not new, but gain much by being thus tersely expressed. If they are accepted, they clearly point to early complete removal of the patent processus vaginalis as the most rational and scientific method of dealing with all cases. It is of course recognized that the wearing of a truss will, in a certain proportion of cases, lead to obliteration of the processus vaginalis. But if it does so, it is at the expense of several months in point of time, with the prospect of possible and not infrequent failure, and an acquired weakness of the abdominal wall from constant truss pressure, which may be a cause of failure if operative treatment be ultimately resorted to. Mr. Russell has operated on 115 children, with two recurrences. Mr. H. J. Stiles[2], in a paper on the subject, reports rather more than 100 cases, with two recurrences; the one a strangulated hernia in which the structures at the neck of the sac had to be freely divided before the bowel could be returned, the other a child with epispadias, in whom there was also separation of the pubes and imperfect development of the muscles of the abdominal wall. Mr. Stiles maintains that the anatomy of the parts concerned in hernia in children is such that the radical operation is not only simpler, but also less likely to be followed by recurrence than in the adult.

A simple operative technique is all that appears necessary to ensure a satisfactory result in children operated on during the earlier years. In these cases the essential part of the operation is the complete obliteration of the sac itself. In the following extract from Mr. Stiles' paper we have a lucid description of the steps of the operation he performs, which is practically Mitchell Banks' operation: After freeing the cord along with its coverings, the latter are caught up laterally at the lower part of the wound by two pairs of forceps, which are held by the assistant in such a way as to stretch out the coverings. These are then carefully divided: First, the intercolumnar and cremasteric fasciæ, the muscular fibres of the latter being easily

recognizable; next, a thin white layer, the infundibuliform fascia; and beneath it the peritoneum of the funicular process. Now comes the most important stage of the operation, and the only one which presents any difficulty, namely, the isolation of the sac, that is to say, the funicular process. When a truss has not been worn, the infundibuliform fascia can, with a little care, be separated from the funicular process, to which are adherent the spermatic vessels and the vas deferens. The vessels lie in a bundle to the outer side of the sac, while the vas, which is rather more adherent, lies more posteriorly. These structures are first detached towards the fundus of the funicular process, which is then grasped by a pair of forceps and pulled downwards so that their separation may be continued upwards as far as the internal abdominal ring. The neck of the sac is now transfixed, ligatured with catgut, the sac itself being cut away. It is quite unnecessary to suture the stump to the muscles of the abdominal wall above the level of the internal ring. The necessity for slitting up the neck of the sac practically never arises except in some cases of strangulated hernia; it should be preserved intact at the seat of ligature. An opening may be made into the lower part of the sac in order that the surgeon may make sure that in ligaturing the sac he does not nip the bowel, or include a piece of omentum, or a portion of the wall of the bladder. When the coverings of the hernia have become thickened and adherent, a condition generally brought about by the pressure of a badly-fitting truss, considerable difficulty may be experienced in isolating the sac and at the same time avoiding injury to the spermatic vessels and vas deferens. In these cases it is often an advantage to open more freely into the sac, and to strip it from the other coverings. When the hernia is of comparatively recent standing, and when no truss has been worn, the sac is generally so delicate and transparent that there is no necessity to open it at all; the operation then becomes entirely extra-peritoneal. The suture, or sutures, are passed through the inner pillar and conjoined tendon on the inner side, and through Poupart's ligament on the outer side, care being taken to leave room for the cord.

REFERENCES.—[1]*Lancet*, 1902, vol. i, p. 1519; [2]*Brit. Med. Jour.* 1901, vol. ii, p. 599.

HERPES. *Norman Walker, M.D.*

Dopter[1] reports three cases of zoster occurring in persons who occupied the same room. Two bed-fellows were attacked

the same day, and five days later a man who slept at the opposite side of the room. It is not often so marked an epidemic is reported, but any one who sees many cases is familiar with the fact that they occur in runs.

Winternitz[2] says that the local application of **Absolute Alcohol** quickly relieves pain and promotes healing.

It is a well-known fact that herpes rarely recurs, but exceptions prove the rule, and quite a number of cases are on record. The case reported by Hirtz and Salemien[3] is, however, unique, so far as we are aware, in that the patient has for some years had, every January or February, a typical attack of crural zoster. The patient was alcoholic, but there was apparently no explanation of the extraordinary recurrence.

Welander[4] treated 26 cases of psoriasis by the subcutaneous injection of arsenic, and in no fewer than three cases distinct "herpes zoster" was observed. Stark[5] reports what is surely an almost unique observation: A patient with acne, under treatment with liquor arsenicalis three weeks, subsequently developed herpes. That is of course frequently observed; but in this patient a fresh attack followed on the resumption of the arsenic.

Loubry[6] reports the case of a young man, aged eighteen, in whom zoster appeared eighteen days after *vaccination*. It is characteristic of a Frenchman that he should say that he has sought literature in vain for a similar case; more than one has been published in England and America.

References.—[1]*Rev. de Méd.* May 10, 1901; [2]*Sem. Méd.* April 3, 1901; [3]*Soc. de Méd. des Hôp. de Paris*, March 7, 1902; [4]*Nordiskt. Med. Arkiv.* No. 21, 1901; [5]*La Presse Méd.* No. 81, 1901; [6]*L'Echo Méd. du Nord.* Feb. 9, 1902.

HIP (Congenital Dislocation of). *Keith Monsarrat, F.R.C.S.E.*

Several writers have expressed the opinion (see article in *Medical Annual*, 1902) that a not uncommon etiological factor in the occurrence of this condition is a change in axis, length, etc., of the femoral neck similar to that which is present in congenital coxa vara. Walther[1] has come to the conclusion, from the study of radiographs, that the actual displacement of congenital dislocation is secondary, and occurs when the child begins to walk, and that in these cases the head of the femur is, at birth, in contact with the acetabulum, but that the structures which normally retain it in position, the cup-shaped socket, etc., are anatomically defective and do not sufficiently resist the

displacement. It has been established that the older the child, the greater the anatomical changes and the difficulties in overcoming the barriers to reposition. Too much importance cannot therefore be attached to an early recognition of the condition. It is increasingly evident that successful results in its treatment are uncommon after the age of five years. Brun[2] would delay all active interference until after the age of three years. He says: "Before this age reduction is usually easy to obtain, but retention is often imperfect. Can the reluxation be attributed to the too great facility of the reduction and the consequent absence of reaction? I am disposed to believe that this is a correct explanation." With this reasoning it is impossible to entirely agree. Even if it be decided for some reason to postpone active treatment for a time, children with this condition must be rigorously kept off their feet.

The accompanying illustrations (*Figs.* 42, 43, 44) demonstrate

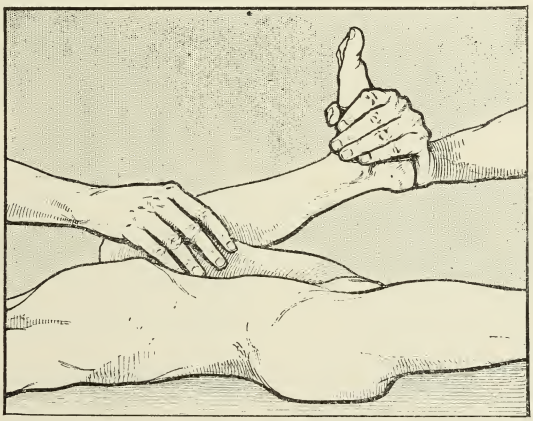


Fig. 42.

the manipulations recommended by Brun for reduction. The pelvis is fixed by flexing the sound limb on the trunk (*Fig.* 42), and it is retained in this position by an assistant. The dislocated limb is then carried outwards in a position of semi-flexion, and the adductors are made tense (*Fig.* 43); these muscles are then torn by pressure exerted by the closed right fist moved backwards and forwards. When this has been accomplished, the leg is seized in the right hand, and a

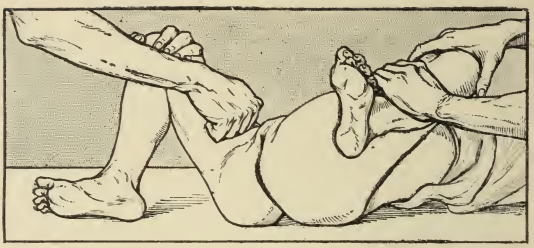


Fig. 43.

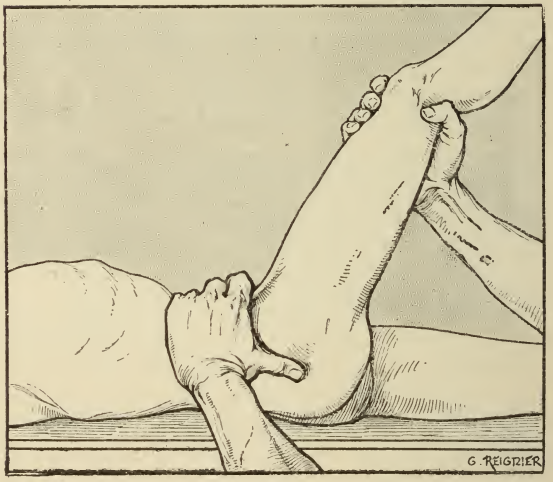


Fig. 44.

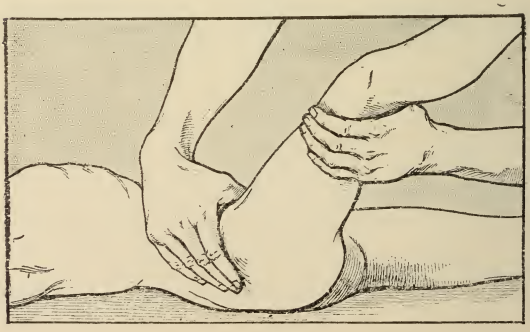


Fig. 45

movement of traction, abduction, and outward rotation exercised; the left hand grasps the iliac crest (*Fig.* 44), while the thumb forces the trochanter forwards and downwards. Two other manœuvres are represented in *Figs.* 45 and 46 which

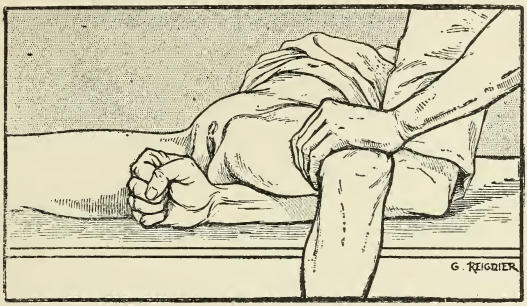


Fig. 46.

may be employed should the effect of the first be unsatisfactory. In *Fig.* 45 the fingers of the right hand are brought to bear on the great trochanter; in *Fig.* 46 the thigh in a position of forced abduction lies on the right forearm of the surgeon, while his left hand bears on the lower extremity of the femur.

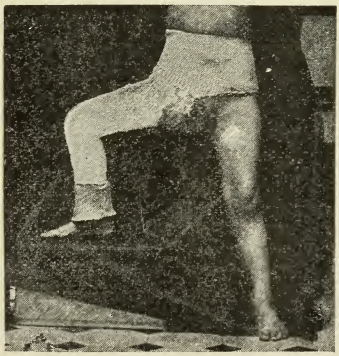


Fig. 47.

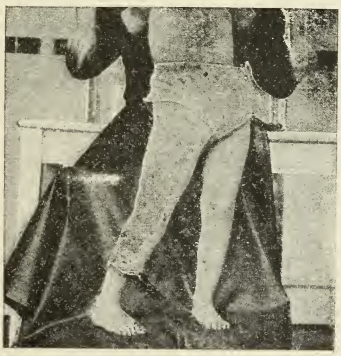


Fig. 48.

Brun attaches great importance to the careful application of the plaster case which retains the limb in its position of abduction (*Fig.* 47); this first case he keeps in place for some four months, at the end of which time the position is changed under anæsthesia to

one of modified abduction with internal rotation (*Fig.* 48), and fixed again with plaster. This case in its turn remains on for two months, and then gives place to one with the limb in the correct position, The limb remains in plaster for another two months, and is then released. Brun differs from Lorenz in not permitting any walking until the fixation in plaster is discarded.

Ochsner[3] reports in detail the course of treatment in a case where he obtained eventually a perfect anatomical result, as evidenced by the dissection of the pelvis after death, which took place from intercurrent disease. The case was one of double dislocation in a female child of four years and three months, and the method of reduction was Lorenz's "bloodless functional weight method." The reduction was made by pulley traction, with subsequent abduction and flexion; while traction in the latter directions was made with the left hand, pressure was made on the great trochanter with the right, and the thigh then over-extended; at this point the head was felt to slide over the posterior ridge of the acetabulum. The left thigh and the trunk to the level of the ribs were incased in a thin layer of cotton and plaster of Paris with the thigh abducted to 90° in slight over-extension; a week later the right limb was similarly treated. Reluxation took place twice, due in Ochsner's opinion to the use of cotton under the plaster permitting too free movement. Ultimately the result was both functionally and anatomically excellent, after two years and three months under treatment.

Witzel[4] describes a method of fixation of the reduced femoral head which he employed on a child aged four years. The luxation was left-sided, and was reduced by traction under anæsthesia. The limb was fixed in position by plaster. On the following day a window was cut in the plaster case and the neighbourhood of the joint exposed; gauze strips were packed under the edges of this window, and the skin exposed was carefully sterilized. A semi-circular incision was then made immediately above the border of the trochanter, the upper edge of the acetabulum exposed, and a series of six gold pins driven into the bone so as to make a pallisade-like projection half surrounding the head of the femur. They were driven 2 cms. into the bone. In this position they made reluxation of the head impossible, and Witzel considered them also capable of setting up extra bone formation in their vicinity. The wound was then closed.

Subsequently the child was treated similarly to an ordinary case of bloodless reposition, the pins remaining in position.

REFERENCES.—[1]*Münch. Med. Woch.* No. 14, 1902; [2]*La Presse Méd.* Oct. 19, 1901.; [3]*Ann. Surg.* July, 1902; [4]*Cent. f. Chir.* Oct. 5, 1901.

HIP JOINT AFFECTIONS, (Differential Diagnosis of).

A. H. Tubby, M.S., F.R.C.S.
Robert Jones, F.R.C.S.E.

The affections of the hip-joint may be roughly divided into those of traumatic, and those of idiopathic origin. But whilst these points serve as broad distinctions, and are of value in treating the subject in writing, yet no hard and fast line can in practice be drawn between the two types of affections. To take some examples, a blow on the hip may give rise to a simple contusion, or an osteitis of the upper end of the femur, or it may be the precursor of tubercular coxitis. Again violence, indirectly applied, leads to sprains with simple synovitis, or to acute arthritis, or to separation of epiphyses, or to fractures and the various forms of dislocation.

The diagnosis between the various lesions of the hip is made by careful attention to symptoms and signs. The former, such as pain, being subjective, and therefore not capable of accurate estimation by the surgeon, are of comparatively little value, while he naturally founds his opinion almost entirely upon signs, which are purely objective. Most of the signs of joint lesions are referable to the following causes: alteration of the balance of muscles, or of the relations of the joint surfaces, or interruption of the continuity of the bone. One or more groups of muscles then acquire an undue advantage over the remainder, either owing to spasm arising from reflex action, or to contraction or contracture, or on account of their origins and insertions being approximated by shortening of the bones. While many joints, such as the knee, the ankle, and wrist are superficially situated, so that lesions in them can be readily appreciated by direct palpation, the hip is so deeply placed and carefully protected, that much reliance has to be placed on induction and inference.

The points by means of which a diagnosis of a hip lesion is arrived at are: Careful consideration of the history of the patient, more especially as to the occurrence of tubercle or otherwise in the family; the history of the lesion, its onset and duration, and whether following an injury or not; the age of the patient; and his general condition. Then there should follow

inspection of the parts, noting alterations in the natural convexities and concavities around the joint; careful palpation and identification of the various bony points; measurements (more particularly of the position of the trochanter and the length of the limb); and, if the patient is able to walk, the character of the progression. Most valuable of all is an estimation of the range of movement of the joint, whether this be free or limited, either generally, or in one or two directions only, or is accompanied by crepitus, pain, and grating. An examination under an anæsthetic will afford useful information. But undoubtedly the employment of an efficient Röntgen ray apparatus in obscure cases is a means of diagnosis which cannot be overestimated. To give examples, we have learnt by this means that many cases which had been diagnosed as coxa vara, were congenital dislocation of the hip[1]; while the occurrence of traumatic separation of the epiphyses of the head of the femur has been verified by means of the Röntgen rays, and many cases recorded during the past four years.

Traumatic Affections.—Of traumatic affections, fractures and dislocations are the most important. If the classical symptoms of loss of power in the limb, eversion, shortening, elevation of the trochanter above Nélaton's line, or lessening of the base of Bryant's ilio-femoral triangle and crepitus be present, the diagnosis is easy. Space does not permit us, nor is it necessary that we should elaborate the usual signs of fracture of the upper end of the femur, but we think it better to mention the causes of difficulty in diagnosis, and state as far as possible how these may be overcome. They arise under the following conditions: In some cases it is not the neck of the femur that is fractured, but the acetabulum. The extent of the fracture varies. Thus a simple fissure may be present crossing the acetabulum, or it may be severed into its three developmental parts, or the head of the femur may be driven into the pelvis. Fissures of the acetabulum give rise to pain and considerable lameness; while the more severe fractures are constantly diagnosed as fracture of the neck of the femur. This error can only be corrected by the Röntgen rays. A more disabling condition is that wherein the rim of the acetabulum at its upper and posterior part is split off. The femoral head escapes in many cases, and a dorsal dislocation results. The nature of the case may be suspected if, after reduction of the dislocation, the deformity recurs; and in some cases during the reduction distinct crepitus is elicited. The prognosis is not good,

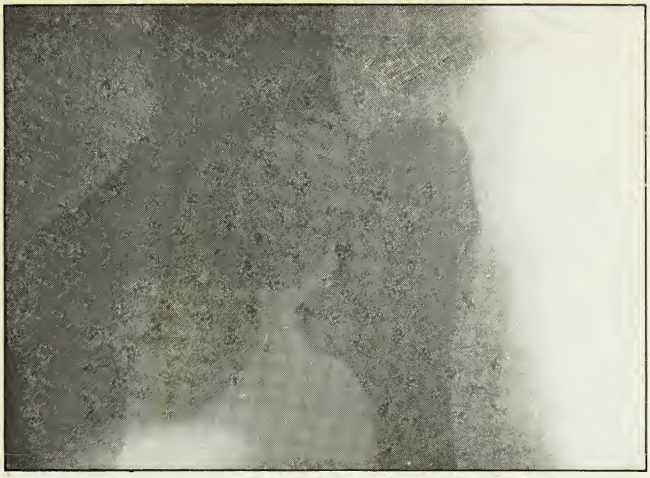


Fig. A.—Intra-capsular Fracture of Neck of Femur, in a patient aged 57 years.



Fig. B —Intra-capsular Fracture of Neck of Femur, in a patient aged 66 years.



Fig. A.—Extra-capsular Fracture of Neck of Femur, in a boy aged 14 years.



Fig. B —Extra-capsular Fracture of Femur, in a patient aged 57 years.

so that in a doubtful case it is imperative that the surgeon should utilise every means at his command to form an accurate opinion as early as possible. When the head of the bone is driven through the acetabulum, there will be symptoms of injury to the pelvic viscera, particularly of the bladder. Unfortunately the prognosis of these last-named cases is bad, and death often results from septic poisoning.

Intra-capsular fractures of the neck of the femur (*Plate XV, Figs. A* and *B*), have given rise to many errors and much discussion. We believe the trouble has arisen in the following way. In the first place, the teaching of most works on surgery is that such fractures occur only in old people ; they are undoubtedly met with occasionally in children and in younger adults. In the second place impaction, or driving of the neck into the head, has caused doubt owing to the slight shortening and the absence of crepitus. And in the third place it sometimes happens that the head is not completely separated from the neck, owing to portions of the capsule, especially anteriorly, binding the parts together, and sometimes in such a manner that the patient has even been able to stand and bear part of the weight on the limb. But it is needless to say if such a fracture be suspected, no attempt of this kind should be made, as it will increase the damage, separate the fragments, and perhaps lessen the probability of bony union. That good union does occur we have very direct evidence. In two of our cases, of old ladies, one aged eighty-two, and the other aged eighty-four, we succeeded in getting union which every test, including that of the Röntgen rays, showed to be bony. In the fourth place, the most frequent source of difficulty in diagnosis is a fall happening to a patient the subject of osteo-arthritis of the hip joint. In this disease pain, some loss of power, occasionally eversion and a false form of crepitus, with some shortening of the limb owing to osteo-arthritic absorption of the head and neck, have undoubtedly been present, although the patient may not have sought surgical advice for it, nor may have been aware of the nature of his trouble. He suddenly sustains a fall, the pain and loss of power are augmented, and a surgeon sees him for the first time, and finds most of the well-recognised symptoms of intracapsular fracture of the femur present, including shortening, eversion, and elevation of the trochanter above Nélaton's line. If he be a wise man, and is unable to command the use of Röntgen ray apparatus at once, he will treat the case as one of fracture until he can make a complete diagnosis. This he should

attempt to do as soon as possible, because it is well known that in these old people it is not the fracture that kills, but the lying in bed.

With regard to extra-capsular fractures so-called, (*Plate XVI, Figs. A* and *B*) although they are only partially extra-capsular, the line of fracture being external to the capsule posteriorly, they are usually due to direct violence, and are accompanied by considerable bruising, eversion, or occasionally by inversion, and by considerable shortening. In this injury difficulties arise mainly from the impaction that occurs, the neck of the femur being driven towards the base of the trochanter. So firm is the impaction, that after the accident the patient may be able to rise and even walk a few steps, when the fragments become suddenly disengaged and he falls. As a rule there is less difficulty in coming to a decision about this form of fracture than the intra-capsular. Fracture of the great trochanter (*Plate XVII, Fig. A*) is fortunately a rare injury, but inasmuch as it is due to direct violence, and much bruising is present, it may be mistaken by a careless observer for extra-capsular fracture, as the top of the trochanter is well above Nélaton's line, and the base of Bryant's ilio-femoral triangle is lessened. But an examination, if necessary under an anæsthetic, or the employment of the Röntgen rays and a screen, will be sufficient for diagnostic purposes.

Separation of epiphyses in the neighbourhood of the hip-joint is comparatively rare, but avulsion of the anterior inferior spine of the ilium, separation of the epiphysial head of the femur, separation of the epiphysis of the great trochanter, and in young children diastasis of the whole upper end of the femur, have been met with. In 1894, when one of the writers collected as many examples as possible of epiphysial separations, he could only find one undoubted case recorded of diastasis of the femoral head.[2] But since 1896 numerous cases, verified by skiagrams, have been shown at the Medical Societies ; and some in which the parts have not been united in perfect apposition, but where the angle of the neck of the femur has been lessened, have been described as cases of traumatic coxa vara. The diagnosis of separation of the epiphysis of the head of the femur from fracture can (with some uncertainty) be inferred from the age of the patient, the muffled character of the crepitus, and the direction of the injury. It occurs from a direct blow on the outer side of the thigh when the limb is adducted and flexed. Separation of the epiphysis of the great trochanter has a melancholy interest

because, of five cases collected by one of the writers,[3] two died from septic poisoning. It is difficult to give reasons for this, since it does not occur by any means so frequently in fracture of the great trochanter. We advance this explanation: This epiphysis derives its blood supply almost entirely from the shaft, and is further covered, not by vascular periosteum, but by the fibrous insertions of muscles; the juxta-epiphysial junction is characterized by the presence of large venous sinuses, and, the skin being bruised and damaged, we believe that micrococci are conveyed from the damaged skin to the venous sinuses, and there set up thrombosis and suppuration, and the separated epiphysis readily necroses.[4] In any case, once the diagnosis of separation of the epiphysis of the great trochanter is clear, a careful watch must be kept for symptoms of septic osteomyelitis, and an incision made at once should the temperature rise.

Traumatic Dislocations of the Hip.—By the work of Bigelow,[5] Henry Morris,[6] and Oscar H. Allis,[7] the pathology and diagnosis of the various forms of dislocation have been placed upon a scientific basis, and they have been divided into two forms, regular and irregular. Regular dislocations are those in which the Y-ligament is intact, and the head of the femur takes one of two directions, either inward or forward, or outward and somewhat backward. In the inward forms of dislocation there are abduction of the thigh and rotation outwards; in the outward forms there are adduction of the thigh and rotation inwards, with one exception, namely, the anterior oblique dislocation, where the thigh is everted and lies across the opposite one, and the head of the bone is just behind the anterior inferior spine. If the outer branch of the Y-ligament is torn, the head of the bone may be posterior to and above the anterior inferior spine, and so a supra-spinous dislocation arises. If the head of the femur pass further outwards and backwards, an everted dorsal dislocation occurs. The irregular forms comprise those in which both branches of the Y-ligament are ruptured, and the head may stray into almost any position. The sudden appearance of the deformity coincidently with the accident, together with pain and the position of the limb, are sufficient to declare the nature of the lesion. But as we have before mentioned, fracture of the acetabulum may co-exist, and we have indicated the means of arriving at an accurate diagnosis by using the Röntgen rays.

Sprains and Contusions.—Contusions and sprains of the hip, though not of so severe a nature as the lesions above mentioned,

may cause considerable heart-searching before an appropriate line of treatment can be decided upon. Contusions of the hip may in children determine the deposit of tubercle in the part; and in old people they often give rise to conditions simulating intra-capsular fracture of the femur. It will be noticed that after such an injury the limb appears to be paralysed, and is everted and slightly abducted. The difficulty is much increased if the patient suffers from osteo-arthritic shortening, and then recourse must be had to skiagraphy. Sprains of the hip, in which some of the muscular fasciculi, particularly of the adductors, are torn, or a few fibres of the capsular ligament ruptured, resulting in some acute synovitis with pain, stiffness, on flexion, may cause hesitation in giving an opinion; and this is particularly so if suppuration takes place in the muscle, or if the action of the muscles be limited by myositis or by tenosynovitis, and the patient's disability persist. But the absence of shortening and of crepitus, the retention of considerable power in the limb, and the noting of the situation of painful spots over the muscles on passive movement, will assist in rendering the case clear. Sometimes it happens that blows on the outer side of the hip cause enlargement of the bursæ in the neighbourhood of the trochanter, particularly of that one between it and the insertion of the gluteus maximus. In such a case the swelling, which is fluctuating in character and often exhibits signs of inflammation or of suppuration, is limited below by the insertion of the gluteus maximus.

Idiopathic lesions.—Of these the chief interest centres around tubercular disease of the joint; but in order to clear the field of enquiry it will be well to discuss in the first place those forms of acute inflammation of the joint which, deriving their origin in a specific poison, result in rapid disorganization of the part. Such are: Acute gonorrhœal arthritis, acute epiphysitis (acute arthritis of infants), and pyæmic affections following septic wounds elsewhere, or occurring after specific fevers, such as scarlet and enteric, or as a distinct form of suppurative joint disease after pneumonia, and associated with the presence of the pneumococcus. The acute onset of the arthritis, independently of injury, and characterized by signs of rapid disorganization of the joint, and the not infrequent spontaneous dislocation of the head of the femur, lead to a thorough search as to the specific cause. In gonorrhœal arthritis, careful enquiries as to the habits of the patient, the presence of a urethral discharge,



Fig. A.—Separation of the Great Trochanter.



Fig. B.—Arthritis of both hips in a girl, aged 13 years.



Fig. A.—Tubercular Hip Disease, on the right side.

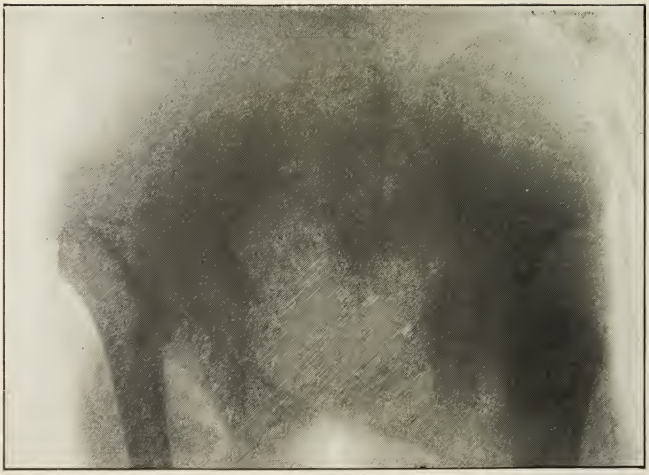


Fig. B.—Tubercular Coxitis on the left side.

the implication of other joints, and in women the onset of the joint disease within a few weeks of marriage, are at least suggestive. It is rarely that the gonorrhœal form suppurates, and it is more frequently of the serous or plastic varieties, yet it often results in ankylosis in a faulty position. The suppurative forms of arthritis in infants and young children (*Plate XVII, Fig. B*) are examples of "acute arthritis of infants," or, as it may be better termed "staphylococcic juxta-epiphysitis." It is seen at even the tenderest age, and is ushered in by rigors, an irregular intermittent temperature, exceeding pain, and rapid local and general wasting. The joint is held rigidly, and the least attempt at passive movement causes agony. The limb may be in its natural position, or flexed and adducted, or flexed and abducted. As we have mentioned, rapid disorganization of the joint occurs, and pus escapes from it and tracks through the soft tissues. The head of the femur leaves the acetabulum, and is dislocated on to the dorsum ilii, or lies loose in the joint cavity. Early diagnosis in these cases is imperative, because the affection is attended with the greatest danger to life, and serum or pus must be evacuated as soon as possible. From a bacteriological point of view it is interesting to ascertain what is the nature of the virulent agency at work. In most cases it is the staphylococcus p. aureus or albus ; but we have lately had under our care two cases in young children in whom the pneumococcus alone was found, and suppurative disorganization of the joint followed subsidence of the lung symptoms. There is practically no other disease which presents the same clinical picture as "acute arthritis of infants." But a gradual loss of power in the limb, with a slow formation of pus, separation of the head of the femur and disorganization of the joint, may occur in the course of congenital syphilitic epiphysitis. Apart from the less acute onset of this disease, the age of the patient often corresponds to that of cases in which acute arthritis occurs ; yet in the specific form other signs of the congenital malady will be present and other epiphyses be affected, the most frequent one being that at the lower end of the femur. In adults, acute inflammation of the hip-joint is due to septic causes at work elsewhere, especially in women with puerperal fever ; or it may arise by extension of suppurative inflammation from the ilio-psoas or gluteus maximus bursa, or from osteomyelitis at the upper end of the femur, spreading to the joint. In some cases an abscess from a diseased appendix is left unopened, and tracks down and the pus enters the joint.

Tubercular coxitis (*Plate XVIII, Figs. A* and *B*) is, of all the affections of the hip, the most frequently met with, and therefore errors in diagnosis are more common ; due not so much to coxitis being assigned to another cause, as that other and less frequent diseases are ascribed to it. For example, most cases of coxa vara were until recently put down to traumatic or tubercular coxitis. It is not necessary to enumerate the symptoms and signs of coxitis, but there are some which are of particular value in determining the presence of the disease. Apart from the question of an injury, the history of which is often unreliable, two points are noticeable at the onset, the occurrence of a limp, associated with a rapid decline in the general health. Then follow pain, wasting of the thigh muscles, and loss of the gluteal fold. And the limb is noticed to be abducted and flexed and everted, and subsequently it becomes adducted. But in very acute cases the adduction stage is present from the first. Of all signs of tubercular coxitis, the most important is limitation of the movements of the joint, more especially in the direction of flexion and rotation. The method of examination is as follows : The child lies supine, and the movements of the sound hip are first practised so as to gain confidence ; then the angle of flexion of the deformed hip is ascertained in the following way. The child is so placed that the pelvis is square ; the sound hip is then flexed until the lumbar spines come in contact with the couch. At the same time the thigh on the diseased side is seen to rise from the couch, and so the angle of flexion can be easily estimated. In a doubtful case, the flexion of the sound thigh should be continued to its full extent, and any elevation of the femur on the affected side should be noted. It is possible by these means to determine the smallest degree of loss of action. Rigidity of the muscles on the affected side is ascertained by gently flexing the thigh ; and the loss of rotation is best recognized by placing the child on his face, if possible, flexing the knee, and then testing the movements. But it may be briefly stated that if complete flexion, rotation, abduction, and adduction are present, there is no disease at any rate in the joint. Cases, however, occur in which the disease does not begin in the acetabulum, or in the epiphysis of the head of the femur, but just external to the epiphysial line of the neck of the femur, or in the base of the trochanter. Disease beginning in this way spreads rapidly, and involves the articular surfaces. In some cases it is possible to recognize the condition when it is

situated external to the epiphysial line of the neck. Before the advent of the Röntgen rays, a fairly correct guess could be made by noting the symptoms when the child was examined under an anæsthetic. If, with all the symptoms of hip-joint mischief—more especially thickening about the great trochanter—it was found that the movements of the head in its socket were smooth, then the disease was probably situated in one of the two exceptional situations above mentioned. But with the advent of the Röntgen rays the focus of the disease can be more exactly determined. The importance of these remarks is that early and immediate operation is indicated, and the tubercular deposit should be removed before it has time to cause destruction of the joint cavity. We have ourselves on two occasions succeeded in arresting the disease in a most satisfactory manner, by being on the alert as to this possibility. More often the disease commences either in the head or in the acetabulum, and the early recognition of the acetabular form is more imperative because of the intractable nature it assumes later. Examination *per rectum*, more especially when the disease is on the left side, may reveal thickening on the inner aspect of the pelvis. The onset of abscess in tubercular coxitis may complicate the diagnosis, more especially if spinal disease exist as well. Careful attention should then be paid to the history of onset, and the back and the abdomen examined. A sudden increase of the shortening occurring in tubercular coxitis is generally indicative of pathological dislocation of the head of the femur, but when this has existed for a long time it may be mistaken for congenital dislocation, or the reverse error may be made.

It remains to indicate other possible sources of error in the diagnosis of tubercular coxitis. These are sacro-iliac disease, disease of the great trochanter, of the trochanteric and psoas bursæ, appendicitis with associated flexion of the hip, disease of the lymphatic glands in the groin, causing flexion and a limping in walking, syphilitic epiphysitis of the neck of the femur, sciatica, and sarcoma of the upper third of the femur. The differential diagnosis of other diseases of the hip-joint from the tubercular form is difficult in cases which run an unusual course. We have mentioned traumatic effusion into the joint, and pyogenic affections of the hip, and given their distinctive features. It is unlikely that confusion will arise with Charcot's disease or osteo-arthritis.

Hysterical affections of the hip are not so uncommon

as is thought, and occur amongst the poorer classes. Thus a case of the following nature came under the notice of the writers. A girl, aged fourteen, sought advice at the hospital, and she had the typical limp of tubercular coxitis. She complained of pain, and said she could not sleep, and when placed under examination the rigidity of the right hip was very noticeable, the more especially as she would not at first permit it to be moved in any direction. There was no swelling, no rise of temperature, and it was quite evident that if the amount of disease corresponding to the rigidity were present, her general appearance would be totally different. She was, as a matter of fact, well nourished, and not in the least pain-worn. When her attention was distracted the movements of the joint became quite free, and further enquiries elicited the fact that in the same house there was a boy suffering from hip disease.

Mention has already been made of arthritis deformans of the hip. This is a disease of middle or late life, causing shortening, loss of power, stiffness, and often eversion, and gives rise to confusion in old people after a fall on the trochanter. Exceptionally, osteo-arthritis is met with in young adults, and then the diagnosis becomes more difficult. However, a Röntgen ray examination suffices to establish the diagnosis.

In children there are three conditions not associated with a rise of temperature, namely, coxa vara, (*Plates XIX* and *XX*, *Figs. A, B, C, D*), congenital dislocation, (*Plates XXI* and *XXII*, *Figs. A, B, C*), and paralytic dislocation of the hip, which are mistaken for coxitis. But in all these it is to be noted that, although shortening and malposition of the limb are present yet the movements of the joint are painless, especially in the direction of flexion, and are less restricted, while the history of the onset is totally different. Coxa vara was until quite recently confused with tubercular coxitis. In both affections there is pain at the onset, limping and shortening, and in some cases of coxa vara there is a diminution in the angle of flexion, and in most there is loss of abduction. An accurate account of coxa vara was given by Mr. Keith Monsarrat in the *Medical Annual* of last year, to which reference may be made. The symptoms vary in the three recognized forms. If the head be displaced vertically downwards then loss of abduction is seen. If the head be displaced downwards and the neck so twisted that it is convex forwards, flexion and outward rotation are limited; and if the neck be twisted backwards, the reverse signs will be present. It has

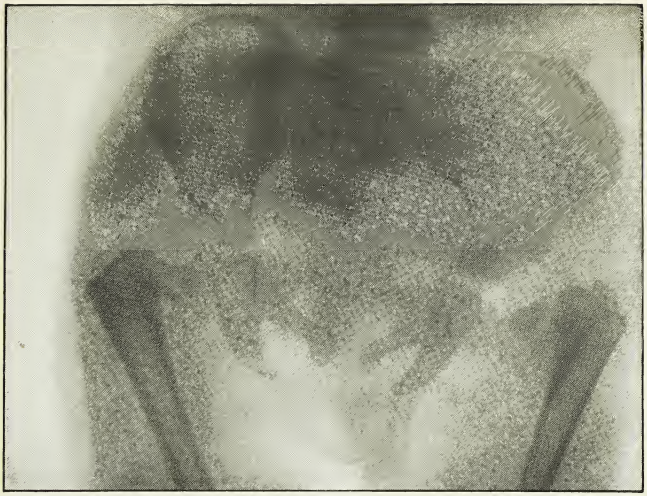


Fig. A.—Double Coxa Vara, in a girl aged 4 years.



Fig. B.—Coxa Vara, in a girl aged 7 years.

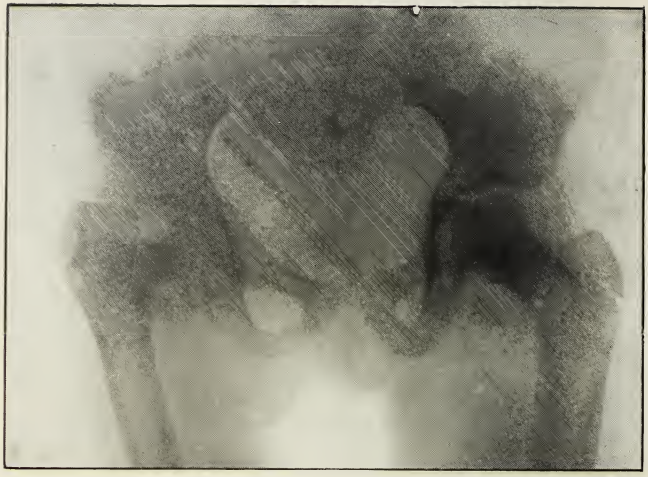


Fig. C.—Coxa Vara in a girl.

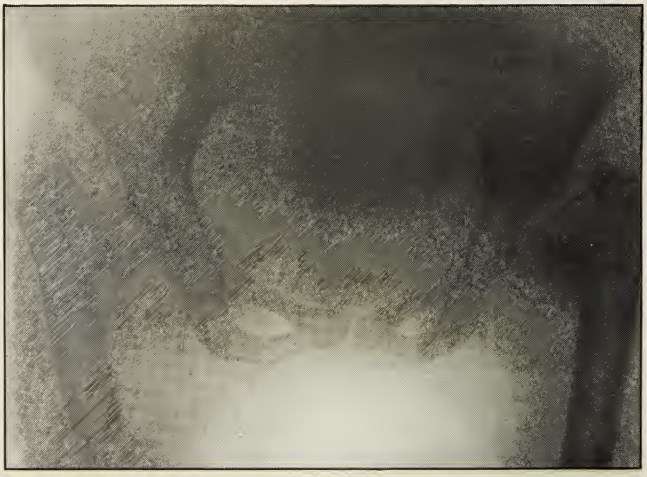


Fig. D.—Extreme Coxa Vara, in a female adult aged 26 years.

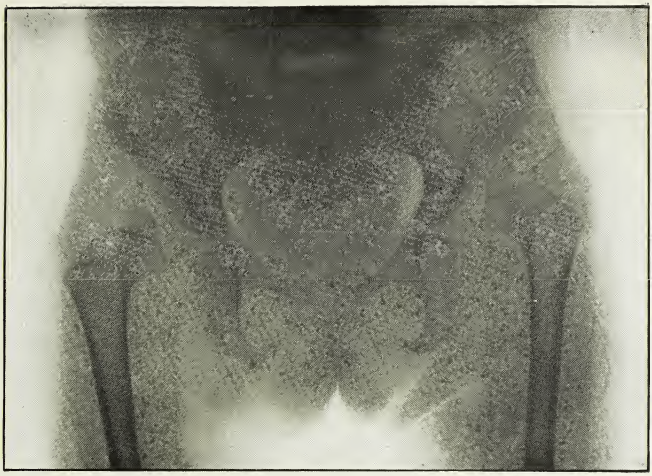


Fig. A.—Double Congenital Dislocation in a girl aged 4 years.



Fig. B.—Congenital Dislocation of Hip in a child aged 3 years.



Fig. C.—Congenital Dislocation of Hip in a girl aged 8 years

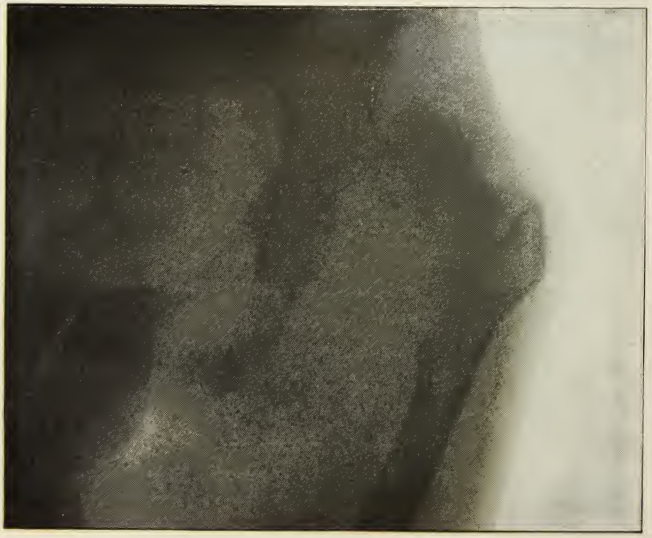


Fig. D.—Paralytic Dislocation of Right Hip in a patient aged 19 years. Infantile paralysis of right leg from hip to foot, and five inches shortening.

already been stated that many cases of so-called coxa vara have proved to be congenital dislocation on skiagraphic examination, so that the importance of this method cannot be exaggerated, and indeed it is very often the only sure means of detecting incipient degrees of coxa vara. Confusion is not so likely to arise in the case of congenital dislocation of the hip. Apart from the fact that it is often bilateral, and putting aside the history, the freedom of the movements, and the possibility of "telescoping the hip," are sufficient means of diagnosis; and this should be confirmed in all cases by skiagraphy; and, if possible, the presence or otherwise of an acetabulum and its shape be ascertained.

Paralytic dislocations of the hip (*Plate XXII, Fig. D*) are fortunately rare, and are met with in those cases in which the greater part of the lower limb is affected. If any doubt arises, a careful electrical examination of the muscles and a thorough testing of the reflexes should be made. The possibility of Charcot's disease beginning primarily in the hip in middle-aged patients, must not be forgotten. And here the history, the testing of the reflexes, the examination of the eyes, and of the skin for anæsthesia and dysæsthesia, are called for.

After what has been said, it is not necessary to enumerate other diseases which might possibly give rise to error. But the whole subject may be summed up thus: Bear in mind the possibilities of any given case, obtain a careful history of the onset, make a thorough and systematic examination without undue hurry or preconceived opinions, and in all cases resort to examination under an anæsthetic, or better still, by the X-rays when in doubt.

REFERENCES.—[1]Little, *Brit. Med. Jour.* Nov. 5, 1898; [2]Tubby, *Ann. Surg.* vol. xix. pp. 289--297; [3]*Ibid.* pp. 298--301; [4]Tubby, *Guy's Hosp. Rep.* 1890, p. 99; [5]*Mechanism of Disl. and Fract. of the Hip*, Philadelphia, 1869; [6]*Trans. Med. Chir. Soc.* vol. lx. p. 161; [7]*Enquiry into the Difficulties encountered in Reduction of the Hip*, Phil. 1896; also *Ann. of Surg.* vol. xx, 1894.

HYDROA GESTATIONIS. *Norman Walker, M.D.*

Holmes[1] reports on a case which was investigated bacteriologically by Dr. Bulloch. A pure culture of the staphylococcus albus was obtained. But surely Dr. Bulloch is not responsible for the title of the case, which indicates that the disease is due to the staphylococcus albus.

REFERENCE.—[1]*Brit. Med. Jour.* Jan. 11, 1902.

HYDROCELE. *Priestley Leech, M.D., F.R.C.S.*

Fieux[1] recommends the injection of a Pravaz syringeful of a 10 per cent solution of **Chloride of Zinc** into the sac; if the hydrocele is very tense withdraw a little fluid previous to injection. The injection is made slowly, drop by drop, and gentle manipulation of the scrotum is used. He says it is not attended by pain or inflammation, and there is no necessity to stay in bed.

REFERENCE.—[1]*Lyon Méd.* Dec. 15, 1901.

HYDROCEPHALUS. *Robert Abbe, A.B., M.D., New York.*
W. Scott Schley, A.B., M.D., New York.

The treatment of this condition by craniectomy with drainage of the ventricles, or by aspiration through the fontanelles, or by lumbar puncture, or by the exceedingly radical method of establishing an opening through the bodies of the vertebræ into the abdominal cavity, has met with but scant success; most of the improved cases having subsequently relapsed. Such operations, not being curative, are of questionable justification. Nearly all of the cases in which subdural drainage has been attempted have proved failures. Those in which permanent metal drainage tubing has been used have proved very fatal, while those in which absorbable material, such as catgut, was used, relapsed. Eccles has recently proposed and carried out with apparent success a similar procedure, but employing horse-hair strands in a small bundle 2 inches long and 15 hairs thick. One end was pushed through the brain into the lateral ventricle, and the free end down between the dura and brain. The dura was not sutured, and the skin brought together by sutures, and sealed by collodion with appropriate dressings.

Ewart and Dickinson[1] have reported upon a modification of the older method of induction of artificial pneumocephalus for the treatment of chronic hydrocephalus. In simple tapping the pressure is relieved by the escape of a certain amount of fluid, but as the flow must stop when the membranous portions of the cranium have ceased to be overstretched, further reduction can only be effected by some external pressure, which has practical objections. The bulk of the fluid remains in the ventricles. The present method aims at complete evacuation of the fluid by allowing aseptic air to take its place. Two of Southey's cannulæ were introduced through the fontanelle into the lateral ventricle, one acting as a drain and the other with a cotton filter serving as an air inlet. The site for the outflow puncture was

selected a short distance below that for the air supply. Too great rapidity of outflow was regulated by a screw-clip on the rubber delivery tube. They report a case in which considerable reduction in the size of the head followed. If the treatment were begun sufficiently early permanent damage to the brain tissue might be averted, and a normal development might perhaps ensue.

REFERENCE.—[1]*New York Med. Jour.* Jan. 1902, from *Pediatrics.*

IMPETIGO CONTAGIOSA. *Norman Walker, M.D.*

Schamberg[1] discusses the distribution and varieties of this disease. Between 1878 and 1887 it constituted only 2 per cent of all cutaneous affections in America. During the past year in his polyclinic in Philadelphia, fully 10 per cent of the cases were impetigo contagiosa. It is more common there in summer, and epidemics are frequent, but they are dispelled by the first cold wave. He notes that many cases of the bullous type of this disease are recorded as cases of pemphigus neonatorum, a fact which has been most strikingly prominent in British literature in the past year or two. The very rapidity of the recovery should make the observer pause before rushing into print with wonderful cures of pemphigus.

Schamberg washes the parts with soap and water, and applies during the day a **Perchloride Lotion** of 1 to 500, and at night a paste containing 10 to 15 grains of **Ammoniated Mercury** to the ounce. Sometimes he finds that cases yield more rapidly to an ointment of 15 grains of resorcin to the ounce.

REFERENCE.—[1]*Inter. Med. Mag.* April, 1901.

INFANT FEEDING.

Henry Dwight Chapin, M.A., M.D., New York.

There are certain principles involved in infant feeding which, if understood, greatly simplify this difficult subject. At the beginning there must be a knowledge of the principles of nutrition, especially as they apply to infancy; and then the practitioner, instead of always using a particular food or food mixture, will know what is essential to the future welfare of a given infant, and order food that will suit its condition, just as he would order drugs in sickness.

All growth is a process of cell division, with a specialization of cells; and hence during the period of its rapid growth the infant urgently needs a sufficient supply of cell-building food—

that is, **Protein.** The body heat is maintained by the combustion of the fat and sugar consumed, but the fat and sugar cannot be converted into proteid, or animal cells. Any excess of fat or sugar above the quantity required to maintain body heat is stored up as fat in the infant. Proteid can also be used as fuel, and if there is not enough fat and sugar in the food to furnish heat, the proteid will be burned up, and there will be no gain in weight or increase in strength. If the quantity of proteid in the food is too low, while there is more fat and sugar than is consumed, the baby will gain in weight and be fat, but anæmic. Such babies show little resistance to disease. It has been proved by experiments on the lower animals that the vitality and future welfare of a young animal depend on a liberal supply of proteid while it is growing. The size of the vital organs, strength of bone, and quantity of blood are greater in animals receiving a liberal supply of proteid.

The milks that are intended by nature as the food for young animals vary with the species. They all contain fat, proteids, sugar, and mineral matter, but in different proportions. The animals that grow the fastest require the most proteid, and we accordingly find that the milk of such animals is richest in the proteids. A baby grows slowly as compared with animals that attain full development within a year or two of birth (*e.g.*, calves), and we accordingly find that woman's milk contains a smaller quantity of proteid than cow's milk. The usual method of feeding infants is to make up from cow's milk a mixture that contains the same quantities of fat, proteids, and sugar as is found in human milk of medium richness; but many young babies have difficulty in digesting such a mixture.

The proteids cause the principal difficulty; nor is this to be wondered at, since the milk of each species serves a purpose beside nutrition, and that is, to *develop the digestive tract.* When a young animal is born, it has never used this tract, and accordingly the digestive process is set up gradually. The colostrum promotes the movement of the bowels, and its ingredients can be absorbed with little digestive effort. The mammary gland gradually changes its output into milk, and the flow of the digestive juices increases. Milk curds in the stomach, the object of this being to develop the mechanical function of the digestive tract. If milk were all soluble, nothing but absorption would be required, and later, when solid food is necessary, the stomach would be unprepared to take care of it. In comparing the

digestive process of different animals, it is found that in the cow digestion takes place principally in the stomach, and the process is slow; in the horse, principally in the intestine, into which the food passes while the horse is eating. Cow's milk forms curds that are solid, and leave the stomach with difficulty, which educates the calf's digestive tract for its future work. Mare's milk forms a fluid jelly, which easily passes into the intestine of her offspring, just as the food of the mother does. Woman's milk forms finely-divided curds, just as her own food is received by her stomach, in a finely-divided or chewed condition. Thus it will be seen that the milk of each animal has a function of developing the digestive tract in the line of its future activity, as well as furnishing nourishment. We may thus understand why the milk of one animal does not fit the digestive tract of another, even after the percentages of fat, proteid, and sugar have been adjusted to approximate the milk we are trying to imitate.

There is no known way of producing a perfect substitute for woman's milk. The most we can do is to mix a food that will contain enough fat and sugar to maintain the body heat, and sufficient protein to allow of an increase of animal cells, which can only be constructed in this way. This food must contain milk, as curding is necessary to develop the mechanical function of digestion. Young animals do not grow properly unless this part of digestion is looked after. If we simply dilute cow's milk to reduce the amount of proteid or curd to suit the infant's digestion, it may not receive nourishment enough to cause gain in weight, all the food ingredients being used to furnish heat. When sugar is added in sufficient quantity to this diluted milk, the infant will gain in weight, but if the food is less than half milk the infant will not get as much proteid as it gets in mother's milk. The amount of fat in diluted plain milk is too low. Sugar can take its place in furnishing heat, but **Lecithin,** an important ingredient of the brain and nerves, is found dissolved in the fat, and a baby needs this element, as its nervous system is poorly developed at birth. Human milk is rich in lecithin, but this is not so plentiful in cow's milk, as the calf is born with a fully-developed nervous system and does not need it. As the lecithin is dissolved in the fat, in making the proportions of fat in diluted cow's milk equal to that in woman's milk, it will be seen that more than merely heat-producing food is accomplished.

The diluting of cow's milk, and adding sugar and fat in the

form of cream, is known as modifying milk, and it is important to get at some simple and accurate method of accomplishing such a result. First, have pure, clean milk delivered in a quart bottle, and set it on ice or in cold water until the cream rises. By keeping it cool the separation of cream is promoted, and bacterial growth retarded. It is generally accepted that in mixed, or market milks, the quantities of fat and proteids are very nearly equal. It is always safer in feeding an infant to use the mixed milk from a herd of cows, both from the standard of purity and uniformity. If the whole milk contains 3 per cent butter fat, it will likewise contain about 3 per cent proteid; if 4 per cent butter fat, about 4 per cent proteid. The proteid practically does not rise above 4 per cent in richer milks, such as those containing $4\frac{1}{2}$ or 5 per cent butter fat. Thus, if we simply know the butter fat in whole milk, which is easily determined by any dairyman by the Babcock method, we can tell pretty closely the strength of the proteid. In creams there is practically the same amount of proteid as is found in the whole milk. In any quart bottle of milk on which the cream has risen certain layers of the top milk will contain a very constant ratio between the fats and proteids. By removing these layers we get certain nutritive values at various depths from the top. The author has devised a little dipper, holding just an ounce, and constructed so that it can be lowered through the neck of the bottle, and thus the proper strength of cream easily procured. The following table will show how the cream varied in strength from the top in three samples, having different amounts of butter fat in the whole milk :—

	Fat, Per Cent.	Fat, Per Cent.	Fat, Per Cent.
Whole milk	3·1 ..	4·2 ..	4·8
Top 6 ounces	13·4 ..	19·0 ..	23·0
,, 7 ,, ...	11·6 ..	16·4 ..	19·8
,, 8 ,, ...	10·2 ..	14·1 ..	17·3
,, 9 ,, ...	9·2 ..	12·6 ..	15·5
,, 10 ,, ...	8·4 ..	11·4 ..	13·9
,, 11 ,, ...	7·7 ..	10·4 ..	12·7
,, 12 ,, ...	7·1 ..	9·6 ..	11·7
,, 13 ,, ...	6·6 ..	9·0 ..	10·8
,, 14 ,, ...	6·2 ..	8·3 ..	10·0
,, 15 ,, ...	5·8 ..	7·8 ..	9·4
,, 16 ,, ...	5·5 ..	7·4 ..	9·0
Skim Milk	0·7 ..	0·6 ..	0·4

It will be seen that the top 9 ounces will contain about three times as much fat as proteids, and the top 16 ounces about twice as much fat as proteids. The illustration (*Fig.* 49) shows an assay of the distribution of fat in a quart of 4 per cent fat milk

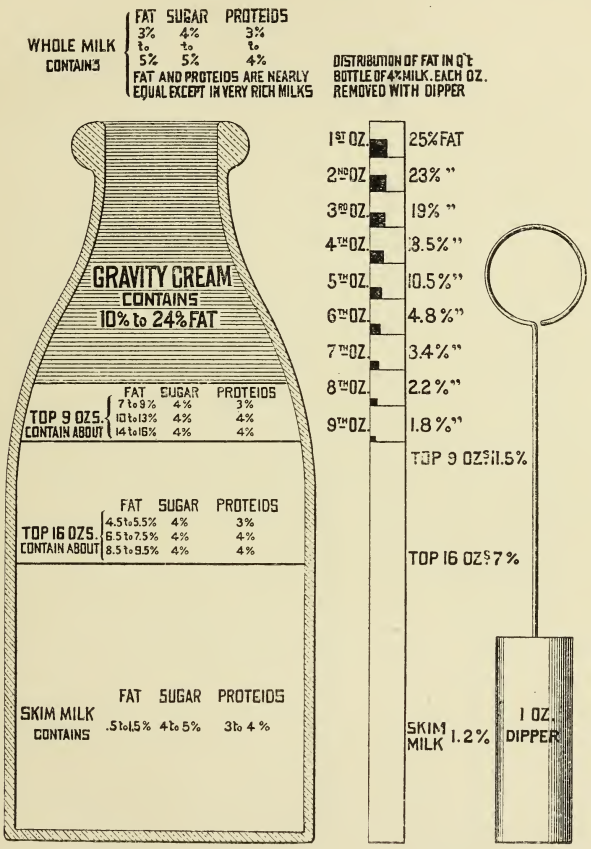


Fig. 49.—Graduated Bottle and Composition of Milk.

For healthy infants under three months, dip off the top *nine ounces*, and mix in a pitcher or bowl. The top ounce must be removed with a teaspoon and placed in the dipper for measurement, as putting the dipper in at once would cause the bottle

to overflow. Many experiments have shown that inserting the dipper into the bottle will not mix the cream with the underlying milk, as might be supposed. For infants under three months, mix one part of this 9-ounce top-milk with from three to seven parts of diluent, and add one part of sugar to twenty parts of food to bring this element up to the right proportion. A teaspoon, tablespoon, or the dipper may be used as a measure. Two level tablespoonfuls of granulated sugar or three of milk sugar equal about one ounce. The dipper scantily filled with granulated sugar, or heaped full with milk sugar, will stand for an ounce. Give from 2 to 4 ounces of this feeding mixture every two to three hours.

For infants over three months, remove the top *sixteen ounces* from a quart bottle and mix. Use one part of this 16-ounce top-milk with from one to four parts of diluent, and add one part of sugar to from twenty to twenty-five parts of food. Give from 4 to 8 ounces of this feeding mixture every three hours.

The question as to the best diluent is of great importance, and has perhaps received more attention from pediatricians than any other question in feeding. The writer has long advocated the use of a digested or dextrinized **Gruel** as a diluent, for several reasons. When cow's milk is diluted with water to suit the infant's digestion, the amount of proteid, or cell-building food, is reduced below that usually found in breast milk. When a digested gruel is used as a diluent, the amount of proteid received by the infant is increased, and, at the same time, the attenuation and digestion of the proteids (curd) of cow's milk is rendered easier. The starch of the gruel, being rendered soluble, is not liable to fermentation in the intestinal canal. Mother's milk contains a larger proportion of lactalbumin, or albumin in an easily soluble form, than cow's milk, and the dilution of the latter lessens still more this valuable ingredient. When food is taken into the human stomach a quickly-soluble portion greatly enhances the vigour of digestion. The soluble gruel thus, to a certain extent, makes up for the deficiency of lactalbumin in the diluted cow's milk. The digested gruels are made by boiling wheat, barley, oatmeal, or rice until a thick gruel is formed. A heaped tablespoonful of flour, or twice as much of the flaked cereal, is added to the pint of water and boiled for half an hour. If a double boiler is used there will be no danger of burning the gruel. After thus cooking, the boiler is placed in cold water, and, when the gruel is cool enough

to be tasted, a teaspoonful of **Malt Diastase** is added and stirred, which causes a prompt thinning of the gruel. It may next be strained and salted to taste. A trial should be made of any malt preparation to see if it is active enough in diastase to thin a gruel, before recommending its use. A glycerite of diastase known as **Cereo** is very active in this respect. After the food is mixed, if it cannot be kept below 60° F., it may be pasteurised. The author believes, however, that better results are obtained by keeping the food in a cool place until it is ready for use.

As any portions of the food that are not digested will be found in the infant's stools, these must be regularly examined when there is any digestive disturbance. The normal stool is soft, homogeneous, and about the consistency of thin mush. Butter-like curds indicate too much fat in the food, and the remedy will be to dilute plain milk, or even skim milk, instead of the top milk. Hard, cheesy curds, from the casein, call for more dilution of the milk. In all forms of curdy stools the best results are usually obtained by increasing the diluent and lessening the milk until the stools become normal, when the milk can gradually be increased again to its proper strength. The advantage of using digested gruels is that they afford an easily-absorbed nutriment, when milk must be weakened or withheld.

In summer diarrhœa, **Stop all Milk** at once, and clear out the digestive tract with castor oil or calomel to remove the putrefying milk curds which are causing the trouble. By feeding gruels nutrition is maintained and the harmful bacteria starved, as they cannot grow easily in such a menstruum. When the stools lessen and become more normal, milk may cautiously be added to the mixture, and gradually increased to its full strength as the digestive power improves.

INSANITY. *James Shaw, M.D.*

Etiology.—Dr. Ford Robertson[1] is convinced that by far the most important factor in the pathogenesis of insanity is toxic action. He says, further, that most cases of insanity are not primarily dependent upon disease of the brain at all, but upon the action of toxins derived from elsewhere. Any chemical substance which, on being brought to a cell and taken up by it, disorders its metabolism, is a toxin for that cell. The toxic conditions which tend to affect the nerve cells may result from : (1) Exogenous toxic agents, *e.g.*, alcohol, opium, arsenic, lead, bad maize ; (2) Infections, *e.g.*, syphilis, influenza, enteric fever, tuberculosis, malaria, diplococci, and streptococci ; and (3)

Auto-intoxication and auto-infection, especially from the gastro-intestinal tract, but also from the respiratory passages, the skin, or any of the organs or tissues of the body. Among the primary non-toxic etiological factors he would include: (1) Inherent defects of cerebral organization, which are inconsistent with the normal development of the mental faculties; (2) Physical causes which directly injure the cortical neurons, more especially traumatism; (3) Deficiency of the materials necessary for nerve-cell metabolism; and (4) Sensory impulses in some instances. He maintains that in all other cases, which he believes form by far the larger proportion, the primary etiological factor in the pathogenesis of insanity is toxic action.

Dr. Clouston[2] is more convinced, the more he sees of mental disease, that hereditary brain-weakness is the prime factor in its causation. Toxæmia he believes to be the "primary condition" in very few cases of insanity. Far more than half the existing mental disease or defect occurs during either the formative and developmental or the decadent and senile periods of life, and is caused, he believes, primarily through the cortical nutritive arrests or perversions incident to nerve cell development or retrogression. He does not think there is any evidence whatever that toxæmia is either the cause or accompaniment of the developmental arrest of idiocy, notwithstanding the ingenious hypothesis of D'Abondo and Agostini as to the possibility of a poison passing into the fœtus from the maternal blood. Nor is there any proof of its action in the developmental disturbances of adolescent insanity. Most of the climacteric and less acute senile cases do not exhibit during life or after death any provable toxæmic symptoms whatever.

On the other hand, he admits that there can be little doubt toxæmic conditions do play the chief part—though in many cases not the primary part—in general paralysis, puerperal insanity, alcoholic, syphilitic, rheumatic, and gouty insanities, and possibly phthisical insanity. In regard to some cases of epilepsy and epileptic insanity the toxæmic case is strong, but not yet proved. There are certain symptoms which should always suggest toxæmia in any case, *viz.*, pyrexia, convulsions, headaches, vivid hallucinations, perversions of sensibility, stuporous and confusional states, abscesses, skin irritations, inhibition or marked inferterence in the cardiac and vascular actions, very foul tongue, fœtid stools, and absence of chlorides in the urine.

Diagnosis.—Dr. E. Goodall[3] states that in twenty-eight normal subjects the measurements on the two sides of the body showed little asymmetry, whereas in the insane marked asymmetry is the rule.

Dr. Marco Treves[4] has found transverse striation of the finger-nails and toe-nails in nearly 50 per cent of insane patients and criminals, but only in about 10 per cent of normal subjects. It was very frequent (75 per cent) in the degenerative psychoses (*folie circulaire*, etc.). It was also very frequent in neurasthenia. The striæ are more marked on the thumb than on the fingers.



Fig. 50.—Transverse Striæ on Nails.

The number, position, and depth of the striæ indicate to some degree the number, times, and duration of organic disturbances. It should be remembered that the time required for the regeneration of the toe-nail is from three to six times longer than that necessary for the growth of the finger-nail. *Fig.* 50 (from *Journ. Ment. Path.*) shows the clinical appearance of the striæ.

Sanctis and Toscano[5] found that weak-minded and deaf-mute boys showed greater frequency of abnormal types of finger-prints than normal boys. Simplicity may be said to be the special degenerative characteristic of the finger-prints of the weak-minded and the deaf-mutes. The authors say that the anomalies found by them are not so marked as other writers have found among idiots, epileptics, and criminals.

Dr. Robert Jones,[6] in an interesting paper on grey hair and emotional states, with special reference to the rapid blanching of the hair in a paranoiac, aged fifty-three, of which illustrations are reproduced (from the *Lancet*) in *Figs.* 51, 52, says that the influence of nervous changes upon the hair has not been fully worked out, but that we are familiar with the harsh, dry hair and skin of melancholia, the oily condition of the latter in the dementia of general paralysis, and the upstanding shock of hair and peculiar odour of the skin in certain cases of mania. He insists that in any explanation of "sudden blanching" the close physiological connection between the cerebro-spinal axis and the skin, which take origin in the same layer of the blastoderm, should be borne in mind. Dr. H. Campbell[7] has likewise



Fig. 51.



Fig. 52.

observed that blanching of the hair of the head prematurely, asymmetrically, rapidly, or before the beard, indicates infallibly some nervous defect.

Dr. Cowen[8] finds, in cases of insanity, two classes of pupillary anomalies, *viz.*, inconstant variations, and persistent or progressive impairment. Both classes of symptoms are met with in general paralysis and senile dementia, but only the former class in other forms of insanity. In senile dementia one occasionally finds unequal pupils, but usually only small pupils with distinctly sluggish reaction to light. In general paralysis the pupils are almost always affected at some stage. In about 14 per cent of cases the earliest augury of general paralysis is that the pupils, though active to light, show to focal illumination a slight initial contraction followed at once by a wide dilatation. The first eye

symptom, however, is usually a slight inequality of the pupils, with sluggishness to subdued light on the part of the larger pupil, accompanied by absence of the usual dilatation on cutaneous stimulation, all the other reactions being normal. Later, the larger pupil will be found more sluggish or fixed, and eventually both become fixed and immobile to light (Argyll-Robertson pupil). Last of all, the power of contraction associated with accommodation and convergence may be impaired on one or both sides. Mydriasis is a late symptom, but may occur early with amaurosis. Myosis may be present quite early and persist unchanged through all the stages. The author found this in 13 per cent of his cases, and, though not the most constant, it is the least variable of all the ocular symptoms of general paralysis. Marked and definite pupillary symptoms occur in alcoholic, syphilitic, and saturnine pseudo-general paralysis, but nearly always improve and disappear.

From observations and analyses made by Dr. J. H. Coriat[9] it appears that *indican* is increased in the urine in stuporous and depressed states generally, except involution melancholias, and diminished in the latter and in states of excitement and exaltation (hyperkinetic states). Acetone was found in all the groups except in epileptic stupor. Diacetic acid was present in melancholia, the akinetic conditions of dementia præcox and general paralysis, and in cases of alcoholic hallucinations with fear.

Dr. H. D. M. Alexander,[10] in a study of the blood-pressure in various forms of insanity, found no marked elevation in simple melancholia, and rather a diminution in chronic melancholia except in exacerbations. But in acute passive melancholia it was invariably high, and remained so until the acute mental and physical symptoms abated. In the agitated form it was irregular and less elevated than in the acute passive. In sixteen cases of acute mania he found the reading always above normal, though never so high as in melancholia. Craig, on the contrary, found the pressure low in thirty-three cases of mania. [And this is more in accordance with the prevalent opinion. J. S.] Alexander found mental improvement coincident with descent of pressure though not so markedly as in melancholia. The tension of the pulse increased in relapses of mania or at the beginning of recurrent attacks, or in exacerbations during convalescence. Just before the recurrence of excitement in relapsing mania the blood-pressure rose 10 to 20 mms. of mercury, and continued

to rise as the acute attack developed. The pressure in mania was low if exhaustion was present. It was also low in advanced stages of general paralysis. In senile dementia with constant fidgety motor restlessness it was much above normal.

Dr. Libertini,[11] in a special research, found the reflex time in the upper limb markedly reduced in all forms of mental disease, the diminution being proportionate to the gravity of the condition and the degree of mental decadence. The minimum time was found in typical microcephaly. As a general rule there was a greater reduction in states of excitement than in states of depression, and this was especially so in women.

Prognosis.—Dr. Handfield Haslett[12] emphasises the fact that a sudden onset is much more favourable than a slow one. He rightly insists on the necessity of eliminating general paralysis and other organic diseases whon making a prognosis, and on the fact that periodicity, in which the attacks occur without apparent cause at fairly equal intervals, should not be confounded with mere recurrence, a much less grave prognostic, in which attacks occur irregularly, and can generally be traced to a cause. Of hallucinations, the visual have the least grave significance. The author says he has never known a case to recover in which there were hallucinations of taste and smell. Auditory hallucinations persisting for over a year, and associated with delusions of persecution, indicate a chronic condition. He rightly insists on the importance of the fixity or changeability of the delusions as compared with their nature—fixity being of evil, changeability of good omen. Delusions of visceral obstruction, or of persecution, plots, etc., are more liable to become fixed than others. Sexual delusions (as to impotence, etc.), masturbation, or fits are of serious import. Dr. Haslett remarks that the prognosis in climacteric melancholia is rendered very unfavourable by secret indulgence in alcohol or drugs. He has noticed that the growth of facial hair in women has always been an indication that they would not recover. Dr. T. B. Hyslop[13] found at Bethlem that if a patient did not sleep more than one or two hours at a time, and that continued for more than a month, he would not get well.

Treatment.—Sir John Sibbald,[14] in a discussion on hospital treatment, said that persons suffering from mental disorders in their early stages were not, and under British lunacy law could not be, provided for in asylums, yet such patients were at present, as a rule, unable to obtain hospital treatment of any

kind. All he desired was that patients of the poorer classes, who suffered from incipient mental disorder and could not be properly cared for in their own homes, should be received into general hospitals where they could be suitably treated. Many would thus be saved from drifting into asylums, and so avoid the unjust but inevitable stigma. This plan would also enable students to see cases in the stages in which they would have to deal with them as practitioners. Sir John Sibbald thought that six weeks should be the maximum period of detention in the general hospital wards. He thought female nurses should be employed for patients of both sexes.

Prof. Pontoppidon[15] has for fourteen years employed female nurses in the psychiatric wards in the Copenhagen Hospital, male attendants being kept for assistance in the unruly part only of the men's division. Seclusion has been abandoned, whilst the only mechanical restraint (used occasionally for surgical reasons) is a broad belt fastened to the bed, preventing the patient from rising, but leaving his limbs free. Narcotics are rarely given, reliance being placed on kindness, firmness, rest in bed, hydropathic packs, and prolonged hot baths. The average duration of treatment has been twenty-three days for each patient. The recovery-rate is not given.

Dr. Havelock[16] quotes cases to show that the best results are obtained by the judicious use of all methods available, and careful consideration of what best meets each individual case, rather than by restricting one's practice to "bed treatment" or "exercise treatment." In his experience, by far the safest and most valuable hypnotic is **Paraldehyde.** It is specially useful in senile cases, often acting like a charm when given in large doses of 3 to 4 drachms. He finds it useless in the excitement of general paralysis and in senile alcoholics; **Chloral** is better in these cases. He seldom gives any hypnotic in ordinary acute cases, but, if necessary, he gives paraldehyde in smaller doses. **Trional** is not so apt to set up hæmato-porphyrinuria as **Sulphonal,** but its use is by no means free from this danger. It is very useful in cases of recurrent mania; it wards off the attacks and diminishes the excitement; it also suits some senile cases where paraldehyde has failed. He finds **Hyoscine** useful only in exceptional cases of extreme urgency.

In a discussion at a meeting of the Medico-Psychological Association Dr. Rayner[17] said he believed the occasions for the use of narcotics were very few. For many years he had rarely

had occasion to use them. Dr. Blandford felt certain that many patients of his threatened with insanity had been materially benefited by the use of medicines given to induce sleep. One of the best and safest hypnotics was **Paraldehyde.** Dr. Savage thought that one could say much the same of narcotics as of restraint, and agreed that in many cases narcotics were of the greatest benefit in warding off threatened attacks of insanity. Dr. Hyslop defended the practice of physical restraint. He gave an instance of the good effects of night-feeding, and, with Dr. Percy Smith, extolled the use of prolonged baths as practised at Bethlem. The use of **Sulphonal** was advocated by Dr. Fletcher Beach in neurasthenia and "brain-fag," and by Dr. J. S. Bolton in *early* cases of insanity; but the latter speaker and others dwelt forcibly on the dangers of its prolonged or injudicious administration.

Dr. Urquhart[18] advocates the more frequent transfer of patients from one asylum to another as a means of treatment, and quotes cases cured by this change of scene and surroundings. Dr. Bunge[19] pleads for "psychic treatment," consisting of the demonstration of close personal interest in the amusements, work, etc., of the patients, treating the insane as nearly like sane people as possible. Dr. Edwards[20] says that before hydrotherapy was introduced into Kalmazoo Hospital, which had a population of 700 patients, 150 doses of chloral were given daily. Since the introduction of hydrotherapy, with a larger population, only ten doses of chloral are given daily. Hydrotherapy is of particular value in acute cases.

Dr. Sloan[21] has treated forty-six cases of chronic insomnia and associated neuroses by **Faradisation** of the head; 45 per cent were cured and 32 per cent markedly improved. He uses large electrodes, applied to the forehead and the nape of the neck, a very weak current, and an extremely long secondary coil, in a séance of fifteen minutes' average duration. The current is gradually reduced and then shut off, the patient sitting for a few minutes after.

Dr. Ruata[22] investigated the gastric condition of twenty insane patients who manifested aversion to food (sitophobia). In depressed cases with anæmic brain there was deficiency or even absence of hydrochloric acid; whereas in states of agitation or exaltation this acid was in excess. In melancholia an atonic dilatation of the stomach is constant; and regular **Washing Out** with a soda solution is beneficial. The mental condition is

benefited by the local improvement. In addition to washing out, Ruata administers **Hydrochloric Acid.** (*See also* articles on "Dementia Præcox," "Paralysis," "Mania," "Melancholia," "Periodical Insanity," "Puerperal Insanity.")

REFERENCES.—[1]*Brit. Med. Jour.* Oct. 26, 1901 ; [2]*Scot. Med. and Surg. Jour.* Feb. 1902 ; [3]*Jour. Ment. Sci.* Oct. 1901 ; [4]*Jour. Ment. Path.* Jan. 1902 ; [5]*Jour. Ment. Sci.* July, 1902 ; [6]*Lancet*, March 1, 1902 ; [7]*Ibid*, March 8, 1902 ; [8]*Jour. Ment. Sci.* July, 1902 ; [9]*Amer. Jour. Insan.* see *Jour. Ment. Path.* June, 1902 ; [10]*Lancet*, July 5, 1902 ; [11]*Jour. Ment. Sci.* Oct. 1901 ; [12]*Lancet*, Dec. 28, 1901 ; [13]*Jour. Ment. Sci.* July, 1902 ; [14]*Lancet*, Aug. 9, 1902 ; [15]*Jour. Ment. Sci.* July, 1902 ; [16]*Scot. Med. and Surg. Jour.* Aug. 1901 ; [17]*Lancet*, May 31, 1902 ; [18]*Jour. Ment. Sci.* Oct. 1901 ; [19]*Amer. Jour. of Insan.* see *Jour. Ment. Path.* Feb. 1902 ; [20]*Jour. Ment. Path.* July, 1902 ; [21]*Glasgow Med. Jour.* Aug. 1901 ; [22]*Gaz. Méd. Lombard*, see *Brit. Med. Jour.* Jan. 4, 1902.

INTESTINAL INDIGESTION, INTESTINAL CATARRH, Etc.

Boardman Reed, M.D., Philadelphia.

Chronic Intestinal Catarrh, Chronic Colitis, etc.—An important symposium on this subject has appeared in the *International Medical Magazine.*[1] Prof. Ewald, of Berlin, gives it as his opinion that while a chronic catarrhal colitis might occur with quite normal positions of the abdominal organs, and be absent in cases presenting a general downward displacement of the same, yet displacements of the intestines often produce stagnation of the fæces and thus dispose to the causation of intestinal catarrh. He classes the usual form of membranous enteritis as simply a complication of the ordinary catarrhal enteritis in which the mucus is exfoliated in membranous masses, but distinguishes from this a different form of the disease, which he considers really a neurosis and non-inflammatory. For this latter form he proposes the name *myxoneurosis intestinalis*, or *myxoneurosis colica.* Ewald has found that in general intestinal catarrh is associated with a diminished HCl secretion, although there are numerous exceptions to this rule. The same variability of the gastric secretion is found in the nervous forms of membranous enteritis, and the motor condition of the stomach likewise may be either diminished or normal in both these forms of enteritis.

As to the treatment of chronic intestinal catarrh and myxoneurosis, Ewald considers that drastics and laxatives do more harm than good, but that local measures are usually the most

efficient. Olive oil clysters he particularly recommends, especially for the myxoneurosis, and for inflammatory processes in the lower section of the large bowel he commends strongly local injections of **Bismuth** in suspension. In the nervous forms of membranous enteritis he advises a highly nutritious diet, and, when necessary, the simultaneous administration of tonics by the mouth.

Dr. George Herschell in his article coincides with Ewald that either an excessive or diminished gastric juice may be found associated with chronic intestinal catarrh. Under the head of treatment he testifies strongly to the value of **Powdered Cuttlefish Bone** in the treatment of chronic diarrhœa and dysentery, especially those, such as hill diarrhœa and sprue, which are acquired in tropical climates. He gives this remedy in ℥ss to ℥j doses. At the same time he administers a dose of **Castor Oil** every two or three days. Remarkably curative results are claimed by him for this method of treatment. Herschell also advises irrigation of the bowel, and in this connection calls attention to the value of a new apparatus designed by him originally for lavage of the stomach, but found to be very useful also for irrigation of the colon. *Fig* 53 illustrates this apparatus. When in use, the tap is fixed by means of the socket E to the end of a bar *g*, which is provided at its other extremity with a clamp *r*, designed to be fastened to the top of an ordinary chair. A ball and socket joint *s*, allows free movement of the bar, which can be clamped in any given position by the screw *y*. For lavage of the stomach the bar is arranged so that the tap shall be held on a level with, and opposite to, the patient's mouth. The tube *n* leads to a douche can *m*, above the patient's head. For irrigation of the bowel the bar

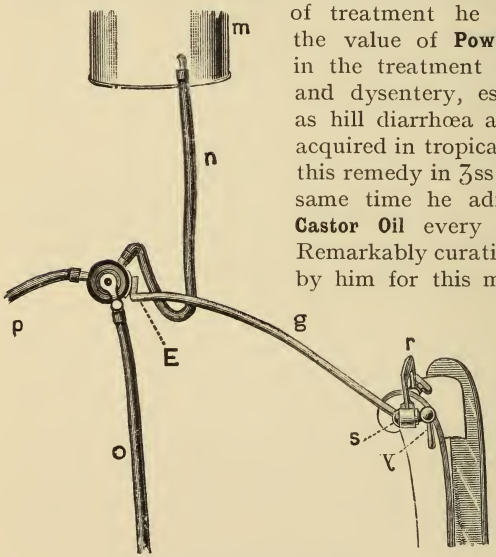


Fig. 53.—Herschell's Apparatus.

is more conveniently attached to the side pillar of the foot of the bed, for which a special clamp has been designed. This allows the tap to be in a convenient position behind the thighs of the patient, who is lying in the left lateral position. The tube *o* leads into the pail beside the bed, and to the remaining tube is attached a short length of rubber tube *p*, carrying the glass mount for insertion into the rectal tube.

Carbonic Acid Gas in the Treatment of Dysentery and Membranous Enteritis.—Dr. Achilles Rose, of New York, contributed a very suggestive paper[2] under this title. He generates the gas in the usual way by combining ʒvj of sodium bicarbonate in ʒvj to ʒviij of cold water with ʒiv of crystallized tartaric acid. With this mixture in a bottle, the gas begins to flow in about ten to twelve minutes. He then allows it to pass into the rectum through a tube for about five minutes, though patients accustomed to the procedure may endure it for a somewhat longer time. The patient may complain at first of a disagreeable tension of the abdominal walls from the unwonted inflation, but this soon disappears, or is easily borne as the patient becomes accustomed to the treatment. Rose has had better results from this form of local treatment than from any other which he has employed in chronic enteritis, and especially in all cases of dysentery. Tenesmus is immediately relieved, and the symptoms are all ameliorated.

Turck's Method in Intestinal Inflammation.—Turck, of Chicago, furnished an elaborate paper[3] on "Chronic Enteritis in relation to Disturbances of the Splanchnic Circulation," in which he discussed very fully his unique method of powerfully influencing such circulation by alternate hot and cold clysters in the treatment of chronic inflammatory conditions in the colon. He also in the same paper reported a number of cases which illustrate strikingly the curative value of the method.

Appendiceal and other Intestinal Catarrhs.—In the same series of papers appeared one by Benedict, of Buffalo,[4] concerning the interdependence of catarrhal inflammations in the colon, cæcum, and appendix. He believes that a broad distinction should be made between the medical catarrhal cases of appendicitis, which are closely associated with chronic catarrh of other parts of the intestines, and gangrenous, septic, or deformed cases which demand operation. He divides the numerous cases which have been observed by him into nine groups or classes, in three of which he considers operation necessary. One of

these groups embraces cases which had been considered too desperate for operation, and yet recovered without it under medical treatment, and his first group includes cases of hernia after operation. Benedict makes large use of a highly purified **Mineral Oil,** a derivative from petroleum, which he finds very curative in catarrhal cases generally.

Dr. John A. Lichty, of Pittsburg, was represented by a practical paper[5] describing the most recent and useful methods of treatment in chronic enteritis. He insists that displacements of the stomach, intestines, and kidneys, one or several of them, are very often the chief cause of chronic intestinal catarrh.

Dr. Margaret A. Cleaves[6] is a recognized authority in electrotherapeutics, and her paper abounds in valuable instructions concerning the choice of electrical currents and the technique of applying them, as well as the results to be obtained from them in these cases. She relies on such methods almost exclusively, and claims a very gratifying percentage of success.

Diarrhœa in its Relations to Chronic Catarrh of the Intestines, including Catarrhal Appendicitis.—The writer[7] has frequently obtained gratifying results from the employment of minute doses of **Podophyllin** (gr. $\frac{1}{200}$ to gr. $\frac{1}{100}$) in the treatment of diarrhœa, a remedy which he reported well of in a paper contributed to the *Practitioner* in 1888. He insists upon the superior value of laxatives generally over opiates and astringents in the treatment of diarrhœa, the important thing in the majority of such cases being to remove putrefying material and toxins from the intestines, after which, with a very bland digestible diet, the flux usually ceases of itself. However, he advises in more obstinate cases a liberal use of **Bismuth,** with which he often combines **Ichthalbin** and **Chalk.**

Intestinal Dyspepsia.—It has been the custom to ascribe all dyspeptic symptoms to diseases of the stomach; but by a thorough study of these it has been found that disorders of other organs may give the same signs as occur in gastric dyspepsia. Trousseau[8] claims that dyspepsia may accompany affections of the intestines, liver, kidneys, and uterus. He thinks one half of all cases of gastralgia and dyspepsia occurring in adults and young girls may be traced back to disease in the colon. Faber[9] has given this subject much attention. He applies the name intestinal dyspepsia to all dyspeptic symptoms originally caused by disease not in the stomach, but in the intestines. In the cases that Faber reports there had been a chronic constipation

for a year, which was followed by symptoms of dyspepsia. These consisted of cardialgia, regurgitation, anorexia, nausea, and vomiting. Later there developed nervous symptoms, such as headache, depression, insomnia, and vertigo. Intestinal disturbances cause the gastric and nervous phenomena by direct irritation of the nervous system and by reflex action through the sympathetics. Faber's patients presented the same group of symptoms as are found in hyperacidity, yet on examination of the stomach contents the gastric secretion was normal. Intestinal dyspepsia is easily diagnosed in some cases, but in others it is very difficult. The patient should be carefully questioned as regards his stools. It is not sufficient to know whether the bowel movements are regular, but one should determine whether there is a retardation of peristalsis, and whether the fæces are hard or occur in lumps. Spontaneous diarrhœa, with occasional mucus and blood, may be present. All important diseases of the stomach must be excluded. The symptoms will vary with the state of the bowels. The pain will occur several hours after a meal, whereas in ulcer it appears at the end of the meal. The hyperæsthesia in ulcer lies above the transverse umbilical line, while in intestinal dyspepsia it is situated below this line. Examination of the stomach contents will be of value in excluding gastritis and cancer. The prognosis is favourable if the constipation is caused by enteroptosis, sluggish bowel muscles, or improper food. If the cause of the constipation is uncertain, the prognosis should be guarded. The treatment involves especially the correction of the constipation. For this purpose a diet rich in cellulose should be ordered. Meat may be allowed once a day. Milk and its preparations, as well as strong laxatives, should be avoided. Small doses of **Castor Oil, Alkalies,** and **Oil Enemata** are to be prescribed. During the convalescence cold baths and a sojourn at the sea are helpful. Intestinal dyspepsia has a great tendency to recur.

Treatment of Atonic and Spastic Constipation.—Westphalen,[10] of St. Petersburg, has written exhaustively of late concerning both the atonic and spastic forms of constipation. The latter form is due to a spasmodic contraction in one or more portions of the bowel, and is most likely to affect neurasthenic or hysterical patients. It is aggravated by purgatives, and by massage of the abdomen, as well as by applications of cold water to the same part; but often yields magically to **Bromides** or other sedatives. The reviewer has also discussed this subject,[11]

confirming the observations of Westphalen, and urging anew the value especially of **Enemas of Olive Oil** in both forms of constipation, in conjunction with a laxative diet and special exercises for the trunk muscles.

REFERENCES.—[1]*Inter. Med. Mag.* Oct. 1902 ; [2]*Ibid.* ; [3]*Ibid.* ; [4]*Ibid.* ; [5]*Ibid.* ; [6]*Ibid.* ; [7]*Ibid.* ; [8]*Clin. Méd. de l'Hotel Dieu*, 1862, vol. ii, p. 348 ; [9]*Arch. f. Verdauungskrankh.* Bd. viii, Hft. 1-2, 1902 ; [10]*Ibid.* vol. vi, No. 2, and vol. vii, Nos. 1 and 2 ; [11]*Inter. Med. Mag.* Sept. and Dec. 1901.

INTESTINAL OBSTRUCTION (Atropine Treatment of).

R. Hutchison, M.D.

This method of treatment was first introduced by Batsch, in 1899, but has not hitherto gained general recognition. He recommended it solely in cases of dynamic obstruction, from spasm of the intestinal wall, and expressly stated that it was useless in organic disease. The experiments of Traversa[1] showed that **Atropine** has the effect of lessening peristalsis, and that therefore it is contra-indicated in retention of the intestinal contents from atony of the wall, although its employment is perfectly rational in lead colic and all cases in which the constipation complained of depends on a spasmodic contraction of the bowels.

In a case reported by Capuccio[2] three doses of atropine were given subcutaneously within twelve hours, with the result that a strangulated hernia was converted into a reducible one. The dose administered was $\frac{1}{60}$ grain at each injection, and the first relief was felt two hours after the third dose, when some flatus was passed by the rectum.

He recommends the tentative use of atropine in cases of obstruction in which the symptoms are mild, and the condition of the patient such as to admit of delay. He believes that many herniotomies would be avoided if recourse were had to atropine when taxis fails. It should not be used, however, in the crural herniæ of old patients where there is a tendency to gangrene.

Polach[3] reports the case of a thin, anæmic woman, aged sixty-eight years, with a previous history of constipation, who presented herself for treatment after two days of absolute constipation. The urine contained some albumin. High glycerin enemas were tried with absolutely no effect, and her condition became steadily worse. On the fifth day the patient went into collapse ; subnormal temperature, pulse 110 to 120, cold extremities, dry tongue, extreme prostration, and an entire absence of peristalsis. The patient was so weak that operation was out of the question,

so as a last resort a hypodermic injection of ·002 grain of **Atropine Sulphate** was given. She soon reacted, and the next day the injection was repeated, after which she passed some flatus and fæces. Her condition was so much improved that she was able to retain champagne and other liquid nourishment. She continued steadily to improve, and when seen ten days later her condition was in every way normal.

Gathgens[4] has also made use of this remedy in the case of a woman, aged sixty-four years, who presented herself for treatment with the characteristic symptoms of acute obstruction. She was immediately given a hypodermic injection of ·003 grain of **Atropine Sulphate**; this was followed six hours later by a second injection of ·002 grain of atropine Three hours later the patient passed wind and fæces. On the following day, as she complained of pain in the left iliac region, with some stiffness of the rectus muscle on that side, she was given ·015 grain of the **Ext. Belladonna** every four hours. After six doses the rectus muscle entirely relaxed, and the patient had a large stool. On the following day she spontaneously passed fæces and flatus, and soon afterward was discharged cured.

Bofinger[5], on the other hand, reports two unsuccessful cases in which atropine was tried. The first patient was a male, aged fifty-two, who for the past year had suffered from loss of appetite and alternating attacks of diarrhœa and constipation, with the passage of mucus-like material. This was followed by absolute constipation, with tympany, marked abdominal pain, and failure to pass even wind. Calomel was administered, and followed by the hypodermic injection of ·004 gramme of atropine sulphate. The patient's condition became steadily worse, pulse very weak, pain increased, and a marked swelling developed in the left iliac region. A high enema of olive oil was then given without success, so an exploratory laparotomy was decided on as a last resort. On opening the abdomen, there was found a typical volvulus of the lowest part of the ileum; the large intestine and the rectum were rather injected, while the upper intestines and stomach were strongly bleached. The intestinal mucous membrane and peritoneum were red and injected. Much ascites was present, and further examination showed an annular carcinoma of the pylorus.

The second case was that of a woman, aged fifty-six, who gave a history of prolonged constipation, and for the last three days before she came under treatment there had been no movement

of the bowels. She complained of colicky pains; there was a swelling the size of an apple in the right inguinal region, with marked meteorism. The entire abdomen was sensitive on examination, especially so in the left epigastrium. The constipation was absolute. For four days hypodermic injections of atropine were given, but with no success. The patient's condition becoming steadily worse, an exploratory laparotomy was performed. The general peritoneal cavity was full of flaky fluid, which was evacuated, the cavity was packed with gauze, and the patient returned to bed. During the succeeding night she was very delirious, got out of bed, and walked. Upon removing the dressing the next day, a piece of the intestine over three feet long was found protuding from the wound. The patient died without regaining consciousness. He concludes that the position taken by Luttgen, that atropine is indicated in all cases of acute intestinal obstruction, is a most dangerous one. In cases of doubtful diagnosis, an exploratory laparotomy is a much safer method of treatment than atropine injections. In one case of this character, in which atropine had been used, the autopsy showed that laparotomy would probably have saved the patient's life. Local sensitiveness to pressure is a very variable and uncertain symptom, but may be made much more so by the use of atropine, particularly in case of incarcerated hernias, where the absence of local pain on pressure may be very misleading to the surgeon. He believes that atropine should only be used in those cases of incarcerated hernia in which, for some ulterior reason, operation is absolutely contra-indicated.

References.—[1]*Polycl.* Nov. 15, 1897; [2]*New York Med. Jour.* Jan. 4, 1902; [3]*Wien. Klin. Woch.* April 25, 1901; [4]*Münch. Med. Woch.* April 23, 1901; [5]*Ibid.*

JAUNDICE, (Epidemic). *E. W. Goodall, M.D.*

Peck[1] gives an account of an epidemic of catarrhal jaundice occurring at Staveley, Chesterfield, in August, 1901. The disease was most common between the ages of fifteen to thirty-five, and attacked males more frequently than females. The onset is gradual, with *malaise*, headache, and drowsiness. Then occur abdominal pain and cramp in the legs. Two or three days later the patient vomits, and occasionally has diarrhœa. The temperature is raised to 100° or 101°. In most of the cases there are rigors or chilliness. Jaundice comes on a day or two after the vomiting, sometimes later. The liver is tender, but not enlarged; the spleen is often enlarged. Out of 69 cases the

complications met with were: nephritis, 1; acute pneumonia, 2; urticaria, 2; and acute yellow atrophy, 1, which was fatal. The epidemic was probably one of the affection known as "Weil's Disease." The incubation period was six to seven days. The disease appeared to be infectious, but it was not ascertained in what manner the infection was spread.

An epidemic of a similar nature occurred at about the same time at Farnworth, near Bolton. Green[2] saw a similar epidemic in the Isle of Wight in the latter part of 1895; and Curwen[3] met with the same disease in Pekin and Tientsin during the winters of 1898 and 1899.

REFERENCES.—[1]*Brit. Med. Jour.* Dec. 7, 1901; [2]*Ibid.* Jan. 11, 1902; [3]*Ibid.* Jan. 11, 1902.

JOINTS (Diseases of). (See "Arthritis," "Hip Joint Disease," &c.)

JOINTS (Injuries to). *Priestley Leech, M.D., F.R.C.S.*

That **Massage** and **Movement** of joints requires trained supervision, goes without saying. This subject was discussed at the British Medical Association meeting by Mr. Howard Marsh.[1] He said, that the surgeon "should keep a close eye on cases which are being treated by massage, was shown by the fact that a sharp attack of gout following massage of the knee was made worse by the continuance of the massage; in several cases overlooked joint tuberculosis has been rendered more active; in another case a hysterical knee which had been handed over to a *masseuse* for treatment, turned out to be sarcoma at the lower end of the femur.

As regards the physiology of **Massage,** the following points are worth remembering: (1) It increases the amount of blood flowing through the part; this increased circulation of blood is in every way advantageous. It maintains or improves the nutrition of all the various tissues; it promotes the restoration of the functional activity of injured muscles, and it plays an important part in the absorption of lymph and extravasated blood; (2) It has also a mechanical action. By the kneeding and percussion extravasated blood and lymph which have been coagulated in the tissues and have led to brawny œdema are broken up and dislodged, and by stroking upwards they are swept onwards within the reach of healthy lymphatics and a normal venous circulation; (3) Massage is also an efficient stimulant to damaged muscles, through its influence on the nervous system; (4) It reduces muscular spasm and relieves pain; (5) Probably it

promotes the absorption of recently formed adhesions if they are not too extensive and firm.

As regards **Movement** of a joint three kinds present themselves for notice :—

(*a*,) Movements of a joint under an anæsthetic ; these must only be used after a very careful diagnosis has been made ; if used haphazard, the surgeon may easily do as much harm as a bone-setter. Their direct influence on the joint for good is limited. They can only break down slight synovial adhesions, reduce displaced semilunar cartilages, and alter the angle at which a joint has become fixed ; if good results have to be obtained the joints must be healthy ; forcible movements of joints which have been or are the seat of such diseases as tuberculosis, gout, Charcot's disease, or some of the forms of osteo-arthritis, are either inappropriate or mischievous.

(*b*,) Passive movements are useful after adhesions have been broken down, or in removing or preventing stiffness of healthy joints which are temporarily disused, *e.g.*, as in fracture of the limb, or disease of one of the other joints.

(*c*,) Resistance movements and voluntary movements, often used in combination with massage, are frequently of the greatest use.

The chief conditions for which massage and exercises are suitable are the following : Sprains and contusions of previously healthy joints, unattended with any material complication, *e.g.*, previous gout, tuberculosis, or hæmophilia. Care must be taken not to overlook a Colles' fracture of the radius, or a Pott's at the ankle, or impacted fracture of the neck of the femur. The importance of revising the diagnosis when the swelling has gone down, cannot be over-estimated, and a skiagraph should be taken if there is any doubt about the diagnosis. Tendons may be ruptured or displaced, or subluxations may be present. In recent dislocations, movements are of great use if judiciously used.

In injuries of some standing an important diagnosis is of even greater importance than in recent injuries. A recent injury of moderate severity tends to recovery, and if this does not take place there must be some underlying condition which has retarded it. In young people tuberculosis may follow an injury, and that quickly. In older people osteo-arthritis may occur or there may be a substratum of gout, and there are two other cases which are much rarer, *viz.*, malignant disease and hæmophilia. If this condition can be excluded massage and move-

ments may be used with some prospect of recovery. It should be used every day. The test of perfectly free movement of a joint within a limited range is the test as to whether the limitation of movement is due to disease inside or outside the joint.

REFERENCE.—[1]*Brit. Med. Jour.* Oct. 19, 1901.

JOINTS (Wounds of). *Priestley Leech, M.D., F.R.C.S.*

In a paper on this subject read to the London Clinical Society,[1] Wallace says that wounds of joints may be divided into three classes: (1) Those in which the joint injury is complicated by compound fracture, and in which the injured joint is the lesser injury; (2) Wounds or probable wounds of joints; (3) Doubtful wounds of joints, such as perforating or punctured wounds. In the treatment of these conditions, he says that the cleansing of the wounds must be mechanical; clip all dirty tissue away with knife or scissors, and use a douche only to remove fragments of dirt or soiled tissue; use sterile saline fluid and not antiseptics. Don't search for a wound into a joint; if the opening into the joint is obvious, sew up the capsule and await developments. The best treatment for infected joints was, he thought, arthrotomy with sterilised saline solution, and suture of the joint cavity; this process could be repeated once or twice if necessary. If after this the temperature remain high, the incision into the joint can be left open and lavage practised daily. Drainage by means of tubes through the joints, and constant irrigation, do more harm than good. Antiseptics cannot disinfect a joint, and if once infected it could not be disinfected.

REFERENCE.—[1]*Lancet*, Oct. 19, 1901.

KELOID. *Norman Walker, M.D.*

Wilmot Evans[1] observed marked improvement in a case from the inunction of **Compound Mercury Ointment.** (See "Scleroderma.")

REFERENCE.—[1]*Brit. Jour. Derm.* May, 1902.

LABOUR (Management of).

Arthur E. Giles, M.D., B.Sc., F.R.C.S.

Position of the Woman during delivery.—Porter[1] strongly advocates delivery in the following position: The woman lies on her back across the bed, her hips well to the edge, and on a Kelly pad, so arranged as to carry fluids into a vessel on the floor. For this purpose the small square pad is most suitable. The patient's legs are separated and extended. They are supported

by assistants, by a couple of suitably placed chairs, or preferably over the knees of the obstetrician, who sits on a chair facing the bed at a convenient distance. The patient should wear her stockings, her thighs should be enveloped in clean towels, and she should be covered with a sheet. This position is maintained from the end of the first stage until the termination of labour, unless the second stage be tedious. The chief advantages claimed for this position are :—

(1,) There is less liability of infection with fæcal bacteria.

(2,) Fewer examinations are necessary.

(3,) There is better control of the head at the time of delivery, and consequently less danger to the perinæum.

(4.) The woman can be more thoroughly cleansed after labour, and clothing and bedding are not soiled.

(5,) There is less danger of infecting the eyes or cord of the child, and less risk of its aspirating fluids into its air-passages.

(6,) In managing cases in the unfavourable environments of the lower classes, the position is especially valuable to the young physician, whose experience is gained largely among these classes.

Delivery of the after-coming Head.—Nagel[2] strongly recommends the method of bringing the fœtus forward on to the abdomen of the mother in all cases of the after-coming head, when the face at the time of entry into the pelvis is looking forwards. By this means the birth can be rendered materially easier when perforation is not, as well as when it is, required. The method, according to Nagel, was first described by Van Hoorn in 1715. He adopted it in a case of contracted pelvis with vertex presentation and prolapse of the funis and left arm. The child being dead, he turned and extracted. The arms were brought down with much difficulty, and then it was found that the head was stopped above the inlet of the pelvis, with the chin resting on the symphysis to the left. Seizing both legs, he brought the abdomen of the fœtus forwards on to the abdomen of the mother. The occiput immediately entered the pelvis, and the left hand was now passed into the vagina, behind the buttocks of the fœtus. The occiput was then perforated. The cranioclast was applied without much difficulty, and, aided by the continued anterior flexion of the whole of the fœtus, the head followed.

Prevention of Laceration of the Perinæum.—Several practical points in this connection may be here referred to. Twitchell[3]

calls attention to the fact that when the occiput is down below the pubes, if the head, as it extends, *slides* on the perinæum, the space between the pubes and the fourchette will increase ; on the other hand, if the head *does not slide* during this swing the opening will not increase and the perinæum will follow the motion of the head. This causes a decided stretching of the perinæum, but no increase in the size of the vulvar opening.

To ensure this "sliding," it is of the greatest importance that the natural lubricant of the vagina should be preserved ; consequently douches and repeated examinations, which remove a great deal of the lubricant, should be avoided as far as possible. In a protracted labour the extraction of the head with the forceps, applied before the vagina becomes bruised and dry, will prevent many lacerations, especially as the head can be extracted between pains. This last point is one of considerable importance, and Norfleet[4] lays special stress upon it. He advocates chloroform, which should be pushed at the moment that the head is distending the perinæum. At the same time the progress of the head is restrained during the "pain" ; and as soon as this ceases and relaxation takes place, the head is slowly shelled out by pressure on the forehead. Andrews[5] insists that during delivery the vulva should be thoroughly accessible to sight and touch ; delivery in the middle of a "well" in a feather-bed means a lacerated perinæum almost certainly. The same thing is forcefully urged by Theresa Bannan,[6] who says : "In every case the patient is sufficiently exposed to permit a view of the perinæum, ante-partum exposure and safety being preferred to the exposure of perinæal repair." Bannan does not use chloroform, as she considers that the advantages of voluntary effort or restraint are to be preferred to the relaxing advantages of an anæsthetic ; but most practitioners prefer chloroform in moderate amount. Nicholson[7] remarks : "Our strongest ally for the prevention of laceration is narcosis. This should not be complete, but just sufficient to arrest the advance of the child's head and slow its exit. Our object is not to suspend labour, but to retard the force of the uterine and reflex forces in order to allow time for dilatation to take place."

Sometimes the head has been safely brought through, and the practitioner has the mortification of finding that the passage of the shoulders does the mischief. Lane[8] points out that laceration by the shoulders may be prevented by lifting the head toward the mons veneris, so that the anterior shoulder goes

behind the symphysis pubis while the other escapes over the perinæum, then the anterior is allowed to escape. This enables one shoulder to be born at a time, and produces less strain upon the perinæum than when both are pulled out together with rude haste.

Management of the Third stage of Labour.—Two interesting discussions on this subject took place at the Edinburgh Obstetrical Society[9] and at the Glasgow Southern Medical Society[10] respectively. At the former Simpson gave a learned and interesting historical review of the subject. The chief point debated was the question how soon the practitioner ought to assist nature's efforts to expel the placenta, and what form such assistance should take. McVie held that the most important fact was that the third stage of labour was as capable of being managed by natural processes as the first stage or the second stage, and that when there was interference, it should be on cause shown. There was no time limit for separation and expulsion of the placenta. The uterus had to be watched, and not the clock. The Crédé method of expressing the placenta from the uterus was in general deprecated. Foulis said that the objections to the Crédé method were founded on the fact that it was apt to displace the clots of blood which were nature's mode of preventing hæmorrhage. The swelling of the uterus after the expulsion of the placenta was not muscular contraction, but the pumping action of the heart filling up the cavities in the uterine wall after they were partially closed by the clotting. If they had sufficient patience and kept their hand on the uterus, the clotting would go on till the whole of the sinuses were occupied by a large clot. After that it was a physiological impossibility for the uterus to swell up again. Ritchie thought that there was no objection to the Crédé method, save when it was applied immediately after labour. If the placenta did not come away in a reasonable time he saw no objection to pressure on the fundus uteri. If that were not successful he inserted his hand and endeavoured to get hold of the lower edge of the placenta. In a case where he felt the uterus gradually being filled up with blood he considered it his duty to hurry matters. If the uterus was exhausted by prolonged labour, or there had been a very rapid labour, it was one's duty to wait for contraction and retraction.

At the Glasgow meeting Munro Kerr dwelt on the importance of giving time for the placenta to detach itself; he waited in

some cases as long as thirty minutes. Separation was known by bulging of the lower part of the uterus, by the tapering of the fundus, and by the descent of the cord, the latter having been tied with tape at the vulva as an indicator. Gibson and Peden insisted on the necessity of giving time in the third stage, and criticized adversely the application of pressure to the uterus before the placenta was separated. Jardine advocated a delay of fifteen minutes in order that the placenta might separate. During this interval he steadied with his hand the fundus of the uterus to prevent relaxation and the filling of the cavity of the uterus with blood. Separation having taken place and the placenta lying in the vagina, his method was to make traction on the cord. In cases of adherent placenta he introduced his hand and separated the placenta himself.

It must be recognized that varying circumstances necessitate varying procedures, and we may sum up the most approved teaching as follows: In the first place, if hæmorrhage is going on, the uterus should be gently kneaded to expel clots and secure contraction. If this fails to stop the bleeding, the placenta must be removed; expression by Crédé's plan should be first tried, and, failing this, the hand must be introduced into the uterus and the placenta removed. But if there be no hæmorrhage, it is of no importance how long the placenta is left in the uterus, as long as the medical attendant is present and alert; and every opportunity should be allowed to the uterus of effecting the separation of the placenta and its expulsion into the vagina by its own efforts, or aided only by gentle friction. Once the placenta has been expelled into the vagina there can be no object in leaving it there, and it should be removed by the Dublin method, that is, by pressure over the uterus combined with traction from below. Traction on the cord has been somewhat a bugbear, because the distinction between traction when the placenta is in the uterus, and the same manœuvre when it is lying in the vagina, has not been insisted on. The former is dangerous; the latter is safe and often very useful. Hence, in the absence of symptoms, the medical attendant should watch for the expulsion of the placenta from the uterus into the vagina, which, in normal cases, nearly always happens within half an hour, or an hour at the most. The contraction which drives the placenta out of the uterus often expels it altogether; but if not, it should be removed from the vagina. Above all, the great responsibility of interference in the absence of indications,

and merely for the purpose of saving a quarter or half an hour of the practitioner's time, must be thoroughly taken to heart. An attempt to save a quarter of an hour may result in the loss of several hours, spent in the greatest anxiety, while the patient's life hangs in the balance.

REFERENCES.—[1]*Jour. Amer. Med. Assoc.* Sept. 7, 1901 ; [2]*Berlin. Klin. Woch.* July 22, 1901 ; [3]*New York Med. Jour.* Dec. 28, 1901 ; [4]*Med. Rec.* Dec. 21, 1901 ; [5]*New York Med. Jour.* Dec. 28, 1901 ; [6]*Ibid.* ; [7]*Ibid.* ; [8]*Ibid.* ; [9]*Brit. Med. Jour.* July 27, 1901 ; [10]*Lancet,* Feb. 15, 1902.

LARYNX. *W. Milligan, M.D.*

Local anæsthesia.—To anæsthetise the laryngeal mucosa Wroblewski[1] advocates the employment of a 25 per cent alcoholic solution of **Cocaine.** To prepare the solution the cocaine and the rectified spirit are placed in a test tube and gently heated to boiling point. Complete anæsthesia can be induced with very small amounts of this solution. If any smarting follows, the solution should be diluted with water.

Functions of the Epiglottis,—In discussing the functions of the epiglottis, Knowles Renshaw[2] summarises his observations as follows : "The only function performed by the epiglottis during deglutition is to act as a slight lateral protection to the glottis. The main function of the epiglottis is to prevent the secretions of the upper air passages, etc., from entering the larynx when in a state of rest. By its means these secretions are deflected into the pyriform fossæ, and so find their way into the œsophagus. The influence of the epiglottis over phonation is at present undetermined and uncertain."

Removal of the Epiglottis.—E. Furniss Potter[3] recommends the removal of the epiglottis as a palliative measure in cases of inoperable malignant disease of the larynx.

R. Lake advocates the removal of the epiglottis in certain cases of tubercular disease where dysphagia is severe, and patients avoid taking food for fear of pain, etc. In many conditions of the throat, both morbid and post-operative, the ingestion of food is so painful that requisite quantities are not taken by the patient, with the result that irritability is induced and the general health suffers. Bardes[4] strongly recommends **Rectal Feeding** in such cases, and remarks that it is peculiarly useful in diphtheria, in tubercular conditions of the throat, after staphylorraphy, etc. He claims the following advantages for this method : (1) The throat being at rest is not irritated ; (2) Strug-

gling in children is obviated ; (3) The progress of the disease is shortened ; (4) There is no danger of food entering the larynx ; (5) The physician is able to give such food and stimulation as he wishes to give ; (6) The food is not bolted as it is when swallowing is painful.

Acute Laryngitis.—As an insufflation in cases of acute laryngitis, Fritsch[5] recommends **Sodii Sozoiodol** and **Sulphur Sublim.** in equal quantities, in powder, 30 grains every four hours.

In children, Variot[6] recommends steam inhalations. He does not believe that the addition of such drugs as turpentine, benzoin, etc., have much effect. The steam entering the larynx and the air passages is, he believes, quite sufficient to control the phrenoglottic spasm by loosening the mucus and facilitating its expulsion, and also by its influence on the nerve terminations in the mucous membrane of the larynx. Various medicinal sedatives may also be used, *e.g.*, **Bromide of Potassium, Ether, Musk, Belladonna, Aconite,** etc. He, however, especially recommends **Codeine.** If surgical treatment be imperative, he prefers intubation to tracheotomy, provided that the patient is constantly watched by an experienced person.

Tuberculous Laryngitis.—Coulter[7] strongly recommends the application or injection of **Guaiacol,** with or without previous anæsthetising of the laryngeal mucosa, whilst Leduc[8] uses the following powder as an insufflation :—

℞ Iodoformi	8	Morphine hydrochlor.	0·04
Cocain hydrochlor.	0·08		

St. Clair Thomson[9] summarises as follows :—

(1,) Pathology and clinical experience show that in the majority of cases the focus of infection is near or in the crico-arytenoid joint.

(2,) Many cases only present themselves at a stage when the possibility of effecting a cure by local measures is quite untenable.

(3,) The principle of *primum non nocere* should be constantly kept before us, as many measures have been tried in this affection only to distress the patient and hasten the disease.

(4,) The most rational principle is to attempt to make an early diagnosis of the disease while in an incipient stage. Any persistent or suspicious laryngeal catarrh should be treated seriously on even a presumptive diagnosis.

(5,) Once diagnosed, the patient should be treated on the principles laid down in modern sanatorium treatment.

(6,) Symptomatic treatment should be directed to an irritative, catarrhal, or obstructive condition of the air-passages.

(7,) In addition, silence should be enjoined, the disuse of the voice being proportionate to the degree in which the focus of infiltration approaches or interferes with the arytenoid joint.

(8,) In cases where the situation or extent of disease do not warrant an expectation of complete arrest of the process, treatment should be symptomatic, and in many such cases the sanatorium treatment is uncalled for.

Ostowsky[10] discussing the question of secondary laryngeal tuberculosis, summarises his observations as follows: (1) In tuberculous disease of the larynx the tubercle bacillus is found in all the layers of the mucosa, commencing in the epithelium and penetrating towards the muscle. (2) Its presence in the unaltered epithelium proves that it penetrates from the surface, and not by way of the lymphatics. (3) In early cases showing only a few tubercles or superficial erosions the bacilli are found in small numbers in the sub-epithelial layer; when, however, the mucosa is ulcerated, they are found more numerously in the deeper structures. (4) The presence of bacilli in the lymphatic glands was only ascertained in very advanced cases.

Diabetic ulceration of Larynx.—Freudenthal[11] recommends in the first place a thorough cleansing of the ulcerated area and anæsthetising with cocaine. Injections are then made into the laryngeal cavity of the following **Orthoform** emulsion :—

℞ Menthol	2·0—10·0	Orthoform	12·5
Ol. Amygdal. dulc.	30·0	Aq. destil. q.s., ad	100·0
Vitelli Ovi	about 25·0		

Ft. Emulsio.

References.—[1]*Arch. f. Laryng.* vol. xii. No. 3; [2]*Brit. Med. Jour.* July 19, 1902; [3]*Ibid,* July 19, 1902; [4]*New York Med. Jour.* April, 1901; [5]*Med. Rec.* Jan. 13, 1900; [6]*Laryng.* Jan. 1900; [7]*Chicago Clinic,* Nov. 1900; [8]*Med. Rec.* Aug. 1901; [9]*Jour. of Laryng.* Oct. 1901; [10]*Brit. Med. Jour.* Nov. 26, 1901; [11]*Pract.* Aug. 1900.

LEPROSY. *James Cantlie, M.B., F.R.C.S.*

Jonathan Hutchinson,[1] as the result of his observations at Robben Island, Cape Colony, has come to the belief that the segregation of lepers in a settlement is unnecessary and perhaps unjustifiable. He considers, from an analysis of the literature and the clinical evidence, that leprosy cannot be contagious, and regards the fact that members of a family are simultaneously

or consecutively attacked as explainable by other hypotheses. His opinion continues to be that leprosy is due to the consumption of raw fish. He alludes to the fact that people living near the sea coast are most liable to leprosy, and that in many inland districts leprosy was quite unknown amongst the natives until increased means of communication brought the products of the sea within their reach. The Hottentots were not leprous until smoked fish was introduced amongst them. Mr. Hutchinson reports the case of a Welshman who went to Cape Colony to assist in the construction of a railway, and where he worked in a district which was uninhabited ; he had never seen a leper, but he confessed to having lived to a great extent on salted fish. Mr. Hutchinson accounts for leprosy occurring in a sporadic fashion in Cape Colony by the fact that many natives do not like fish and do not touch it, and that only those persons who consumed salt fish were liable to be attacked. At the same time, whilst condemning the formation of large leper asylums, to which lepers from great distances are compelled to travel, Mr. Hutchinson advocates comfortable abodes for lepers near their own homes ; in fact this authority advocates a return to the older system of leper housing—a system by which lepers dwelt in isolation, without being rigorously forbidden to intermingle with their fellow-beings.

Ashmead,[2] in an article headed "Leprosy is contagious," deals with the question of communicability of leprosy by inoculation, by vaccination, and by direct communication. Ashmead states that the existence of the bacillus lepræ would make contagion probable, and quotes many cases in support of the idea that leprosy is spread by inoculation or contagion. Woods[3] relates a case, quoted by Ashmead, which seems to prove direct inoculation ; he saw a native leper child in Borneo push a knife into his anæsthetic limb, and immediately a European playfellow tried the same operation on himself with the same knife. The white child shortly afterwards went to Holland where there was no leprosy, yet became a leper after a time. In Calcutta hospitals Ashmead asserts that several nurses became lepers in consequence of accidental inoculation ; he also mentions many other instances of accidental inoculation. That leprosy is spread by *vaccination* is maintained by many observers, and *sexual transmission* after years of cohabitation has been frequently recorded. In connection with the origin and infectivity of leprosy, Ashmead asserts that : (1) The leper

carries leprosy with him; (2) Never have virgin countries produced lepers; and (3) The gradual increase of the disease and the influence of isolation, one being in inverse ratio to the other.

Montgomery[4] describes a case of a woman, born in Ireland, and who afterwards resided in San Francisco, who developed leprosy at the age of fifty. Neither her husband nor her children were leprous, but a man suffering from leprosy had for years lodged in her house.

Leprosy and congenital symmetrical keratodermia.—Pernet[5] refers to "a case of leprosy of a singular kind" described by Gilbert White in the *Natural History of Selborne*, in which a scaly eruption broke out in the palms of the hands and the soles of the feet twice yearly, no other part of the body being affected. Pernet remarks that this was not a case of leprosy at all, the palms and soles never being affected by leprosy independently of the rest of the body. It was evidently a case of keratodermia, or, as it is sometimes termed, ichthyosis palmaris and plantaris. This disease was also met with in Dalmatia, but Ehlers and Neumann proved that it was not leprotic, but symmetrical keratodermia. The matter is interesting, inasmuch as it tends to differentiate one of the many cutaneous affections which in time gone by were held to be leprous.

Treatment.—Thin[6] records the treatment of two cases of nerve leprosy in which recovery took place. Case 1: A boy, eleven years of age, suffering from fully-developed nerve leprosy, was brought to Thin for treatment. The boy, born in the West Indies, was brought to England when four years of age, and a few months afterwards developed leprosy. The main line of treatment consisted of **Chaulmoogra Oil** internally and externally. After three months' treatment an improvement was noted, and the oil increased to 21 minims internally in the twenty-four hours. To the skin affections **Boric Acid** was occasionally also applied. Thirteen years afterwards the lad presented himself to Thin to all intents and purposes cured. He had continued to take the chaulmoogra oil for more than two years, and six months after he began to take it an improvement in the signs of leprosy took place. The only evidence of his having had leprosy was mutilation of the hands and feet, and the incomplete restoration of sensation in some parts of the limbs. The mother of the lad stated that chaulmoogra oil was taken internally and applied freely externally, until after

about a year his body and linen, even when washed, smelt strongly of the drug, and it was owing to the repugnance of the patient to continue the treatment that it was left off. The general regimen in this case consisted practically of "open-air treatment."

The second case related by Thin was that of a youth who had been some years abroad, and in whom the disease was diagnosed at a very early stage. The treatment consisted of 5 per cent **Pyrogallic Acid Ointment** to the affected parts, and the regular exhibition of drachm doses of **Gurgun Oil** twice daily, along with 2 minims of Fowler's solution of **Arsenic.** After a week the strength of the ointment was increased to $7\frac{1}{2}$ per cent. Thin is inclined to attribute the beneficial effects he observed to the pyrogallic acid ointment, and attributes to that drug the power of killing the bacilli of leprosy locally. The patient many years after leaving off the treatment presented no signs of leprosy.

Ichthyol in tubercular leprosy.—De Brun,[7] of Bayreuth, in cases of tubercular leprosy, found that 5- to 10-gramme doses of ichthyol could be administered without bad results. In cases thus treated the tubercles became paler and flattened, and the ulcerative rhinitis almost completely disappeared.

Hallopeau[8] advocates the use of **Chaulmoogra Oil** subcutaneously in cases of leprosy in which it causes digestive disorders when given by the mouth. In one patient he injected 5 grammes at a time as often as twenty times in one month, and the injections were subsequently continued at intervals for about five years, until the patient was regarded as cured.

Oswald Baker[9] draws attention to Dr. Jeanselme's paper on "A Study of Leprosy in the Indo-Chinese Peninsula and Yunnan." In the article the cardinal features of the various Leper Acts in force in the different possessions of the British Empire are set forth, and are of great interest to all those in authority who have to formulate laws and regulations whereby to deal with lepers. It is interesting to note that the American authorities in the Philippines have decided to institute leper asylums there. This has no doubt been done after careful scientific enquiry, and it is the most recent expression of public opinion concerning the method of dealing with a leprous community.

References.—[1]*Med. Press,* Sept. 26, 1900; [2]*Med. Age,* Feb. 25, 1899; [3]*La Lèpre est-elle Contagieuse,* Paris, 1879; [4]*Lepra,* vol. i, fasc. 4, p. 199; [5]*Brit. Med. Jour.* Jan. 25, 1902; [6]*Ibid.* May 4, 1901; [7]*Lancet,* May 11, 1901; [8]*Lepra,* June, 1901; [9]*Jour. Trop. Med.* Nov. 15, 1901.

LEPROSY. *Norman Walker, M.D.*

Hallopeau and Du Castel[1] in their communications to the Academy of Medicine respecting the results of administering **Chaulmoogra Oil** by subcutaneous injection, conclude that cases may be so improved as to be considered cured, and that at any rate a markedly beneficial influence is sometimes produced. Du Castel did not approve of its use in the anæsthetic form of the disease, and considered the method rather dangerous, as abscesses and even pulmonary embolism might occur. Both authorities laid stress upon the importance of the purity of the preparation, which, by the way, it is exceedingly difficult to ensure.

Reference.—[1] *Lepra*, vol. ii, fasc. 1.

LITHIASIS (Intestinal). *R. Hutchison, M.D.*

Two kinds of calculi are met with in the intestine :

(1,) Those not formed in the bowel itself, such as pancreatic and biliary calculi, fruit stones, bits of bones, concretions of bismuth, chalk, etc.

(2,) Those originating within the intestine itself and secreted by it. To this form alone is the term intestinal lithiasis applicable.

Vibert[1] gives a description of the disease and a *resumé* of its literature. The *etiology* is quite obscure, but it appears to be usually, if not always, associated with muco-membranous colitis, though which condition is primary it is hard to say. The sand is usually of a yellowish or brownish colour, and the grains vary much in size, but may be as large as an orange-pip. Analyses show that it consists of an organic element of stercoral origin, and salts of lime and magnesia, with traces of chlorides. The passage of intestinal sand or calculi may be attended by severe pain. The colic set up, however, he explained by the narrowness of the canal, as in renal or biliary colic. In some cases the passage of sand and calculi with the fæces is attended by no pain. The site of the abdominal pain is very variable ; most frequently it is more or less general. One of the most frequent symptoms is distension of the abdomen, with or without eructations. The attack will last several hours, or a day. The intensity of the pain is sometimes such as to make the patient cry out. This intestinal colic may recur several days in succession, or several times in a month, or only a few times in the course of a year, or a patient may go a year or two without any attack. The frequency and occurrence of the attacks is most irregular and variable in different cases. The condition has to be diagnosed from others

giving rise to acute abdominal pain. An exact diagnosis can only be made by an inspection of the fæces, and examination and analysis of any sand or calculi present.

REFERENCE.—[1]*Rev. de Thérap.* June 15, 1901.

LIVER (Surgery of). *Walter G. Spencer, M.S., M.B., F.R.C.S.*

Abscess of the liver gives rise to much difference of opinion. The single tropical abscess is frequently connected with the amœbic form of dysentery, and amœbæ are generally found in the wall and in scrapings from the wall of the abscess, less commonly in the pus. But it is not certain that the amœbæ cause the abscess; sometimes the pus is sterile, at other times it contains staphylococci, etc. But the single tropical abscess occurs without being preceded by dysentery. Other forms of dysentery, including those types prevalent in armies, gaols, and asylums, are not followed by liver abscess, except in rare cases of extensive ulceration, when multiple pyæmic abscesses form. Leucocytosis is a distinct aid in the diagnosis of deep-seated tropical abscess, the leucocytes being increased to 30,000 per 1 c.mm. The treatment most in favour is free incision and drainage. Aspiration should not be performed, or, if it yields a positive result, must be followed immediately by operation. The method of puncturing the abscess with a trocar and cannula and then inserting a tube through the cannula seems to be losing ground as compared with a free incision, combined with the protection of the peritoneal or pleural cavity when opened. The puncture of the liver is made with a cautery knife when the abscess is deep seated, and the cavity is gently washed or wiped out, afterwards plugging with gauze.

Hydatid cysts must always be incised, never aspirated. The parasitic wall is easily removed by a gentle stream of water when the cyst is recent. In later cases the treatment is similar to that for abscess.

Excision of pedunculated tumours is occasionally done, the pedicle being treated generally by the extra-peritoneal method, being usually too friable to ligature. In the course of exploring a tumour an unsuspected gumma may be met with, and after being partly scooped out the gumma may be further removed by treatment with iodides.

LOCOMOTOR ATAXIA. *Graeme M. Hammond, M.D., New York.*

Rhein[1] reports a case of tabes in which involuntary muscular movements were a prominent symptom. These were observed

in the legs, especially in the right one, and consisted in a clonic spasm of the extensors of the toes. All of the anterior tibial group seemed to be involved. The contractions were painless. The spasm lasted irregularly for hours, and appeared more frequent during the night. There were days when there was no spasm whatever. The contractions were slow, about two a second, rhythmical and mild. Four to ten contractions were observed, then a brief interval of rest, then a few more contractions, and so on for an hour or so. He refers to other similar cases in literature.

REFERENCE.—[1] *Jour. Nerv. and Ment. Dis.* July, 1902.

LUNG DISEASES (Miscellaneous). *H. P. Loomis, M.D., New York.*

Cough.—Weiss[1] says that expectoration depends on two points: (1) The expelling power of the air, and (2) the resistance offered by the substance which is to be removed, depending on adhesion and inertia. The expelling speed of the air varies considerably. In quiet respiration it passes through the glottis at 125 cm. per second, and the pressure supports 2 mm. of mercury. During violent expiration and severe coughing, the pressure rises to 150 to 200 mm., and the speed is said to exceed that of the wind in a storm. It is said to be as much as 100 metres per second. Of course during the passage through the bronchi, etc., the speed is much less. These experiments show that there is a great deal of work done in violent coughing, and how exhaustive coughing is, especially if it prevents the patient from sleeping. External atmospheric conditions have an important effect on coughing; with a low barometer the conditions are much more favourable than with a high reading, hence the value of a mountainous region, with a permanent low pressure.

In treating cough, our first endeavour should be to remove any cause, reflex or otherwise. It is not necessary always to *stop* coughing; in certain cases you aid it, by loosening the tenacity of the mucus by expectorants or by other treatment. **Apomorphine** is probably the best drug. Great good can be done by such simple means as keeping the atmosphere moist, and thus preventing the secretion from becoming dried and tenacious. This can be effected by keeping a kettle boiling, or by some of the various inhalation apparatus. We must modify coughs by narcotics, as **Morphine,** which dulls the centre in the medulla, and by **Heroin**, which lengthens both inspiration and expiration, thus allowing the moistened air more effectually

to penetrate the bronchial tree. Heroin is best given in pills. **Dionin,** another morphia derivative, seems to resemble morphine very much in action, relieving pain as well. The author thinks that **Belladonna** has been too much neglected, as it stimulates the respiratory centre, and paralyzes the smooth muscle fibres, and inhibits the secretion of glands. It is chiefly to be used to deprive cough of its cramp-like character, as in whooping cough. Weiss considers that *combination* of expectorants and narcotics is wrong. They should be given separately, the narcotic being given for special indications, as pain, sleep, etc.

Ether narcosis.—Ernest Becker[2] says that the pulmonary complications which are so liable to occur from ether narcosis, may be prevented by inhaling with the ether **Oil of Pine.** Ether narcosis causes a marked accumulation of mucus in the trachea and bronchi, making the breathing difficult and rattling. The collection of mucus may be due either to aspiration of the same from the mouth, to irritation by the ether vapour, or to the action possibly of decomposition products, due to the influence of air and light on the ether. The injection of **Atropine** subcutaneously an hour before narcosis, to diminish mucous secretion, is not without danger, as it is a dangerous poison. Dr. Becker has recently been trying to find a drug which lessens the mucous secretion of the air-passages caused by ether, without, as does atropine, exerting any poisonous or injurious action on the organism, and which is suited to favourably influence already existing bronchitis, and at the same time to check fermentative and putrefactive processes in any aspirated secretions from the mouth. Such drugs are to be found in the volatile ethereal oils belonging to the benzol derivatives, and especially to the oxygen-free group, the **Terpenes**, of which the author has found **Oil of Turpentine,** and especially **Oleum Pini Pumilionis,** to be the best. This is allied chemically to oil of turpentine, but it is more fragrant and has long been used for inhalations. He adds about 1 gram to 200 grams of ether (*i.e.*, 2½ minims to 1 ounce) immediately before use. Solution quickly occurs. The ether gains the pleasant smell of the pine, and is much less objected to by the patient. Larger quantities of the oil may be added, but do not make the scent any sweeter, but rather sharper. It may be remarked that the offensive sweetish smell of chloroform is not removed by the addition of large quantities of this oil. Oil of turpentine does not give as good results as oil of pine. Experience shows that ether is not rendered unfit for inhalation,

but is rather improved, because these ethereal oils greedily take up oxygen, and have ozonising properties which are obviously beneficial, seeing that there is advantage in adding oxygen to ether vapour during inhalation. The resinous constituents of these oils, then, favourably influence the respiratory mucous membrane.

The author has had about 500 narcoses carried out with his mixture, and is very pleased with the results. Even in case of bronchitis, lung tuberculosis, empyema, and emphysema of old people, he has not had to give up narcosis with ether to which pine-oil has been added, and he has observed no aggravation of the disease.

Blood transfusion in tuberculosis.—Bier[3] has been led by a consideration of the good effects recorded in many cases by the older physicians as following **Transfusion of Blood,** to consider its use as a therapeutic agent in bad cases. The dangerous symptoms not infrequently following injection are of the nature of an aseptic infectious disease. By agglutination and solution of the foreign corpuscles, transitory hyperæmias and serous exudations occur from capillary blockage, perhaps especially in diseased parts ; erythema, pain in the back and head, diarrhœa, rigors and fever, sometimes albuminuria and enlargement of the spleen. When these symptoms have passed, there is usually a marked reaction, signalled by hunger, thirst, and increased metabolism generally. Bier has recently used **defibrinated Sheep's Blood** in amounts up to 20 cm., injecting this slowly into a superficial vein of the arm. He administered this to seven severe cases of tuberculosis. Most of these exhibited a markedly favourable result ; improvement in appetite and general strength, and also local improvement. A case of tuberculosis of the bladder and testicle, after nine injections in the course of two and a half months gained 5 kilos. in weight. In four cases of lupus the ulcerative process improved. Bier intends to try the effect of this transfusion in other diseases, especially inoperable cancer.

Dr. Thomas J. Mays calls attention to the super-sensitiveness to *pressure over the course of the vagus* in phthisical subjects. This super-sensitiveness will usually be found over the side of the chest having the affected lung. As the result of further research, the author believes that this vagus reflex is not only an almost constant concomitant of phthisis, but that it is a frequent premonitory symptom of this disease, and is often

associated with other pulmonary and nervous disorders, either as a forerunner, or as an accompanying sign.

M. Sanger[4] deals with the symptomatic treatment of *cough*, apart from its causation. In **Menthol,** he says, we have a non-poisonous local anæsthetic of great value, which can quiet the irritation of the respiratory passages, and so diminish cough as thoroughly as morphine can, and yet produce no ill-effects. He applies the remedy by placing a few crystals in a spoon, and warming this over a lamp or candle for five to twenty seconds. This causes an evaporation of the menthol, which will last for a short time, after which the patient rests while he again warms the spoon. Another method consists in using a solution of 40 or 50 per cent of menthol in alcohol, and with 10 to 20 drops on the palms of the hands, this may be inhaled, or it can be applied by means of a mask. As the presence of mucus covering the bronchial mucous membrane hinders the direct action of the vapour, he advises the injection of the drug dissolved in olive oil into the larynx. This produces a strong irritation, and the cough which follows is sufficient to remove the mucus. The method is of use in chronic bronchitis and in phthisis, while it is of less value in acute bronchitis. He also recommends it for whooping cough.

Intra-pleural pressure in pneumothorax.—Bard[5] in an interesting communication which well repays careful study, reaches conclusions which are best stated in his own words :—

(1,) Owing to the anatomical structure of the lung, wounds of its parenchyma of most varied and extensive nature are permeable to gas and liquids only in the direction from the bronchi to the pleura. Only grave and extensive lesions of the organ or absolute obstacles to the retraction of the tissues, such as are found in partial pneumothorax, may permit the passage of gas or liquids in a direction from the pleura to the trachea.

(2,) In generalized pneumothorax, when the fistula is not obliterated, the pressure of the gases is positive during both periods of the respiration in quiet breathing. This positive pressure results from the spontaneous tendency toward the equilibrium of the intra-bronchial and intra-pleural gases by the regular play of respiration, without any part being played by the cough. The hypothetical pneumothorax with a valve is the normal form of general pneumothorax open internally. Cough and efforts act on the intra-pleural pressure more energetically than on the intra-bronchial pressure. In this manner they

contribute toward compressing the lung and rendering it atelectatic, toward pushing over the mediastinum, but in no way toward allowing the penetration of air into the pleura through the pulmonary wound. The degree of positive intra-pleural pressure is but slight, and practically constant in a given patient, presenting respiratory oscillations of several centimetres on either side of a mean of about 6-8 cm. of water. After accidental perturbations it tends gradually to re-establish itself at its fixed level by the normal play of the respiration.

(3,) The degree of this pressure is, if not equal to the pulmonary elasticity, at least in relation with it and determined by it. This elasticity, which, combining with the action of the walls, brings about a negative pressure in the pleural cavity when the lung is intact, provokes, on the other hand, in pneumothorax with persistent pulmonary opening, a positive pressure, owing to its direct transmission along the fistula.

(4,) The positive intrapleural pressure in pneumothorax is a phenomenon of pathological adaptation and compensation in relation to the persistence of the fistula, in that it assists in obliterating it; it should be respected when present, and one might well hasten its production during the phase of initial suffocation.

(5,) Mensuration of the pressure of the intra-pleural gases is an element essential for the diagnosis of the varieties of pneumothorax, and principally for the appreciation of the existence of a pulmonary fistula, its persistence, or its obliteration. However, the character of the mean pressure, whether positive, nil, or negative, does not furnish exact indications for diagnosis; one should substitute for this the consideration of the extremes of pressure. The pressure is positive at both periods in generalized pneumothorax with persistent fistula; it is positive on expiration and negative on inspiration in partial pneumothorax with open fistula; it is negative in both periods in general pneumothorax when there is no fistula, or when this has been obliterated for a greater or less length of time.

References.—[1]*Heilkünde*, Vienna; [2]*Cent. f. Chir.*; [3]*Münch. Med. Woch.*; [4]*Therap. Monats.*; [5]*Amer. Jour. Med. Sci.*, Jan., 1902.

LUNG (Gangrene and Abscess of). *Keith Monsarrat, F.R.C.S.E.*

Le Conte[1] gives the following account of the prognosis of gangrene of the lung: Under medical treatment about 80 per cent die, and after surgical interference about 40 per cent. This

great difference in mortality is not perhaps solely due to brilliant surgery, for in all likelihood the cases that have been subjected to the knife have been more or less carefully chosen; but, on the other hand, it is undoubtedly true that many lives would have been saved had the surgeon been permitted to operate at an earlier stage of the disease. Perhaps, says Le Conte, these two conditions balance themselves, and we have in the numbers forty and eighty the true values of the two procedures. Tuffier's table of 71 cases where operation was undertaken shows that the etiology of the condition plays an important part in the prognosis. In 53 cases where gangrene was the result of inflammatory affections of the lung, there were 15 deaths, or a mortality of 28 per cent. In 4 it was the result of bronchiectasis, and 3 died; of foreign bodies, 2 cases with 1 death; of embolus, 7 cases with 5 deaths; gunshot wound, 1 case, recovery; perforation of the œsophagus, 2 cases, both died. Of the deaths, 8 occurred from progressive exhaustion or septicæmia, in 5 both lungs were involved in the gangrenous process, in 4 the lesions in the lung were multiple, in 4 there was secondary hæmorrhage, 3 were operated on *in extremis*, 3 had cerebral complications, and in 1 the cavity was not found at the time of operation.

The prognosis of pneumotomy has hitherto been much more favourable in acute or sub-acute cases than in chronic abscess and bronchiectasis. This fact is well illustrated by a series of 7 cases related by Koch.[2] Two of these cases illustrate the dangerous complication of sudden pneumothorax; attempts to deal with an abscess or gangrenous patch in the absence of pleural adhesions have been almost invariably disastrous; the contamination of the pleura with highly septic matter, as in the case of the peritoneum, being usually rapidly fatal. The method usually employed to attach a non-adherent lung is by circular suture, around the area which has been localized by palpation or by exploratory puncture. A series of operated cases has recently been published by Garré and Sultan.[3] Hydatid cyst was the condition in most, and the diagnosis was made from discharge into the bronchi. They consider that exploratory puncture is to be avoided, owing to the risk of setting up a general pleurisy; pneumotomy is the only proper procedure. For the localization of the cyst, direct palpation of the lung by transpleural exploration is the best method. In cases of large lung abscesses, extensive rib resection and removal of infiltrated

lung tissue should be employed; the latter, if left, remains functionless and only prevents healing of the wound. Of 5 cases of lung abscess, 4 recovered; 1 case, complicated by empyema, and in which the abscesses were multiple, died. Of 6 cases of gangrene, 2 died, one from hæmorrhage and the other from empyema and chronic pneumonia. The results of operation on bronchiectatic abscesses were unfavourable; 4 out of 5 died, and the authors raise the question whether pneumotomy should not be abandoned for such cases, and only resection of ribs be undertaken.

Gerulanos[4] made some interesting remarks on the general subject of operations on the lungs at the first Greek Medical Congress. Referring to König's dictum that the lung must be attacked by operation only when it is possible to exclude the seat from the pleural cavity, he comments on two possible procedures to effect this: (1) The demarcation of the neighbourhood of the operation area with tampons; (2) The suture of the area to the parietal pleura after its position has been ascertained by thoracotomy. The first method is suitable when the operation area is extensive; suture, and fortifying the suture line with tampons, in circumscribed conditions. All other methods of forming adhesions he considers unsatisfactory. Incision into the lung itself is not dangerous; hæmorrhage is controllable by packing; the blood pressure in the pulmonary circulation is only a third of that in the arterial system. The thermo-cautery is no safeguard against any hæmorrhage that might be troublesome. The prospects of healing in lung cavities is better in the lower than in the upper parts, as the rigidity of the upper parts of the chest wall resists the necessary falling in.

Delagénière[5] discusses the subject of pneumothorax from another point of view. He recognizes the great dangers attached to sudden pneumothorax in the course of operations, and discusses the means available to avoid them. These dangers appear only to be great when the pneumothorax and collapse of the lung occur suddenly, and the slow establishment of pneumothorax may be of much value in some cases in arresting pulmonary hæmorrhage, and also admits of a thorough exploration of the lung with the hand in the pleural cavity when the exact locality of the condition present is uncertain. Once this has been ascertained the involved area may be attached to the chest wall by suture; after the external wound has been closed the air in the

pleural cavity may be removed by aspiration. Should serious symptoms occur in the production of surgical pneumothorax during an operation on the chest, it is possible to prevent further ingress of air by dragging a portion of the lung into the external wound and fixing it there by sutures; this procedure was first suggested by Kocher. Delagénière concludes that the deliberate establishment of pneumothorax is justifiable, and of much practical use in cases of disease foci in the lung of doubtful position, number, etc. He reports 6 cases: 1 a case of pulmonary abscess with adhesion of the pleura which was opened with the thermo-cautery; in 2 other cases the pleura was opened for the extirpation of large growths from the sternum and ribs; in 1 for the treatment of a gunshot wound of the lung.

References.—[1]*Amer. Jour. Med. Sci.* March, 1902; [2]*Cent. f. Chir.* No. 11, 1901; [3]*Beitrage z. klin. Chir.* Bd. xxxii, Hft. 2; [4]*Deut. artz. Zeits.* Nos. 9 and 10, 1902; [5]*Arch. Prov. de Chir.* No. 12, 1901.

LUNGS (Injuries of) *Keith Monsarrat, F.R.C.S.E.*

In the majority of wounds of the chest involving the lungs, surgeons are at present agreed that no active interference is called for beyond what is generally spoken of as conservative. Many penetrating wounds, even where the injury to the lung is extensive and the hæmorrhage copious, produce no symptoms of great gravity, and recovery follows uneventfully under this conservative method. In cases of large hæmothorax, however, the death-rate remains high. Nélaton gave it as 50 per cent, while the mortality for penetrating wounds of the thorax generally is given as 12 per cent. The immediate causes of death in such cases are hæmorrhage and collapse of the lung from either pneumothorax or hæmothorax, or both; the secondary causes are pneumonia, empyema, and abscess, or gangrene of the lung. By the term "conservative treatment" is understood absolute rest, the closure of the wound, cold applications, and compression by bandages.

In regard to the treatment of the wound in the thoracic wall, Klett[1] reports 32 cases of penetrating stab wound, in which he excised the wound layer by layer to and including the pleura and pericardium if injured, and in addition resected ribs when necessary or removed fragments of bone. In wounds penetrating the pleura he advocates draining the pleural cavity by a gauze tampon, and he removes any blood by the wound or by aspiration. The drain is taken out in a few days if infection has not occurred.

Of the 32 cases, 28 recovered ; pericarditis, pleuritis, and hæmothorax each occurred once, and empyema five times.

Hæmothorax when small in amount requires no special treatment. When aspiration appears to be indicated it should be done about the fifteenth day according to the recommendations of Tuffier and Miliani.[2] At this time the fluidity of the blood is suitable, and the pulmonary wound sufficiently cicatrized to prevent any fresh hæmorrhage when the pressure on the lung is relieved. When the hæmothorax is extensive and threatens death from compression, a primary thoracotomy is called for, and the clots of fluid blood are turned out. Such a proceeding should be delayed as long as is consistent with safety in order to allow time for the natural arrest of hæmorrhage from the wounded vessels. When delay is impossible and hæmorrhage still continues, local treatment for its arrest must be undertaken ; the means which have been employed are suture, packing the wound with gauze, or packing the pleura to support the lung, and then packing the wound in the lung. Suture is rarely possible or its attempt advisable. Pneumothorax without other complication after injury only requires surgical interference when it is distending the pleural cavity ; such interference at the present day usually takes the form of tapping with a trocar, but if relief is not thus afforded the chest should be opened.

Most of the recent departures from the " conservative method " have been prompted by the desire of avoiding the frequent secondary complications from sepsis. Blood in the pleural cavity forms such an excellent medium for the growth of organisms, that if admixed with air admitted through the wound in the thoracic wall septic complications will almost certainly occur. In such cases the enlarging of the wound and the removal of blood and clots is eminently justifiable. The lung is already partially, if not completely, collapsed, and, according to Klett, generally expands in a few days. Delorme points out that the hesitation in opening up the pleural cavity in pneumothorax or hæmothorax is unreasonable, for the lung has already collapsed. On the other hand, a hæmo-pneumothorax, where the intrapleural pressure is moderate and the air has been derived from torn lung tissue, is suitable in a typical sense for conservative treatment. Where the lungs are injured by detached fragments of ribs, operation for the removal of these is called for. Kopfstein[3] operated on two such cases ; in the first he removed fragments of rib and replaced the lacerated lung ; in the second

he found a fragment of rib embedded in the lung, and the pericardium was also wounded; he tamponned the wounds with gauze.

Le Boutillier[4] considers the following conditions imperatively call for operation: (1) Distending pneumothorax. If aspiration or the trocar do not relieve, thoracotomy should be done. (2) Large hæmothorax. (3) Extensive and progressive subcutaneous emphysema after thoracic injuries.

References.—[1]*Deut. Zeit. f. Chir.* No. 49, 1898; [2]*Rev. de Chir.* No. 23, 1901; [3]*Wien. klin. Runds.* No. 44, 1898; [4]*Ann. Surg.* May, 1902.

LUNGS (Surgical Treatment of Tubercular Disease).

Priestley Leech, M.D., F.R.C.S.

Borchert[1] has an article on 29 cases of pulmonary disease. In 21 of these the pulmonary disease was directly attacked in the operation, in the remainder the consecutive empyema only was treated. (The case records are given *in extenso* in an appendix).

The most common indications calling for operation are the result of, or the later stage of acute inflammation, but so long as acute inflammation is present, operation is contra-indicated. Among these are acute or chronic pulmonary cavities (unless tuberculous) which show no tendency to heal; bronchiectatic cavities in a state of ulceration or suppuration; pulmonary abscess (this is generally accompanied by gangrene without the formation of large tissue sequestra; the line between abscess and gangrene of the lung cannot be drawn with precision). Operation is necessary when septicæmia or pyæmia threaten, when the strength is undermined, and when hæmorrhage is a pressing danger. Recognition of the tubercle bacilli in the sputum negatives operation. Tuberculosis often affects secondarily long existing cavities, and in such cases recognition of the bacilli is difficult. Ulcerating and gangrenous bronchiectatic cavities have the same indications for operation as acute and chronic cavities. Large size, long duration of suppuration, and large quantity of discharge, call for operation even in the absence of putrefaction and gross tissue destruction. Without the following conditions operation must fail: *viz.*, definite location of the disease; the extent of the disease must not be too great to bring it within the possibility of cure; the absence of secondary foci of disease in the same or other lobes of the lung. Localisation of cavities is exceedingly difficult, as is also estimation of their size and multiplicity. Diagnostic puncture is a most

valuable aid in diagnosis, but it must be used with circumspection. Never puncture unless prepared to operate at once. Skiagraphy has not proved of much value as an aid in diagnosis. It is important to secure obliteration of the pleural cavity at the site of operation. He recommends that an area of pleura even as large as the palm of the hand be exposed by excision of ribs, and then suture by means of a round needle the parietal and visceral layers of the pleura, before opening the cavity. Do not take up too much lung tissue, and do not tie too tightly ; for more efficient protection against secondary infection a strip of iodoform gauze may be sutured to the pleura. When the needle has found pus, leave it *in situ* and use it as a guide for the thermo-cautery. After the cavity is opened explore carefully with the finger, as rather large blood-vessels may run across it. Clean the cavity carefully, introduce a drainage tube, and lightly pack with iodoform gauze. Do not irrigate except under rare circumstances ; tampon the external wound, do not suture it.

Sarfert[2] says disinfection of physical cavities by the Mosler-Hüber method has done more harm than good. He made numerous experiments on subjects who had died of phthisis, and finds that in chronic tuberculosis of the apex reliable adhesions are present from the apex down to the third rib or lower. By excising the second rib from its sternal end to the axilla, one can shell out the whole of the apex of the lung, delimit the cavities by palpation, and incise and tampon them extra-pleurally without any fear of invading the pleural cavity. The author operated in this manner on a woman who had a phthisical cavity the size of a small fist ; the patient felt well for six months, and then died of fibrinous pneumonia of the opposite lung.

Forest Willard[3] at the last meeting of the American Medical Association read a paper on the surgery of tuberculous cavities of the lungs. The paper was based on a series of experiments made on dogs whose lungs had been rendered tuberculous by injections of emulsion of tuberculin, and afterwards operated on by pneumotomy, pneumectomy, and the production of pleural adhesions. Incision, drainage, and even excision of a portion of the lung were demonstrated to be perfectly feasible. If pleural adhesions were absent the operation should be temporarily delayed or divided into two stages. Adhesions, when non-existent, were best produced after subperiosteal resection of the ribs by long sutures carried through the wall into the lung, and then out through the wall again in the form of a parallelo-

gram around the operative field. When tied just sufficiently to bring the two pleural surfaces in apposition, adhesions occurred in from twenty-four to forty-eight hours; the incision of the lung could be then completed under local anæsthesia. Willard's conclusions as to human pulmonary surgery were as follows: (*a*) Pneumonotomy is a feasible operation even in cavities at the apex, and is likely to be helpful in the early period of cavity formation, but it is exceedingly difficult at this stage to get the patient's consent; (*b*) In advanced cases, both tuberculous and streptococcic infection are present; the cavities are usually multiple, and the operation cannot cure. It may be employed as a palliative to cough, hæmoptysis, and sepsis; (*c*) In abscess of the lower lobes following pneumonia or pleurisy, whether tuberculous or not, incision and drainage are to be recommended in any stage; (*d*) Pneumonotomy in our present stage of surgical technique is not advisable in tuberculosis · (*e*) Pneumo-thorax is so serious a menace to life, that in all operations upon the lung an artificial respiration apparatus like the Fell O'Dwyer or Matas instrument should be at hand, together with a full jar of oxygen. With improved technique tuberculous foci will, he thinks, in the future be eradicated, as we now eradicate local tuberculosis in joints and other tissues.

References.—[1]*Archiv. f. klin. Chir.* xliii. 400, in *Ann. of Surg.* April, 1902; [2]*Verhandlungen der deut. Gesel. f. Chir.* xxx. Congress 1901; [3]*Epit. Brit. Med. Jour.* July, 1902.

LUPUS ERYTHEMATOSUS. *Norman Walker, M.D.*

The British Journal of Dermatology, Sept. and Oct., 1902, contains papers on Lupus erythematosus by Sequeira and Balean, and Warde, and while neither profess to contribute anything directly to our knowledge of the disease, both are useful as presenting records of actual facts observed.

Sequeira and Balean have had under their care 71 cases of the disease, and they analyse these critically. 84 per cent were females, and the greatest number of cases commenced between the ages of sixteen and thirty. The youngest was eleven, and the oldest between fifty-six and sixty. There was a history of tuberculosis in rather less than half the cases, and evidence of it in 18 of the patients. They found the disseminated form associated with tuberculosis to a much greater degree than the discoid form. A history of *chilblains* was found in 12 cases. *Albuminuria* was found in 7 out of 27 cases repeatedly examined, including half of the disseminated cases examined. One of

their cases terminated fatally, and a full account of the *post-mortem* is given. A small calcareous nodule was found at the left apex, but no active tubercle was present. The kidneys were in a condition of parenchymatous inflammation. The nervous system was carefully examined, but no changes were found. They conclude that although the nature of the lesions suggest a circulating poison, the hypothesis that this is of tuberculous origin is not adequate. There was a marked association with tuberculosis in the disseminated form, but they very sensibly point out that the disease is hardly ever seen in consumption hospitals, where, were it due to the circulation of tuberculous toxin, it should be frequently observed.

Warde's paper deals with 15 cases, of whom 13 were females. The statistics as to the age of commencement correspond with Sequeira's. His attention was directed to the nasal passages, and in 9 of the cases rhinitis was found. Six of them suffered from ozæna. Then the ears were examined, and in 2 perforation was found. In 8 there was either a minimum or absolutely no wax in the meatus. The drums appeared to be unusually retracted. The circulation anomalies, the changes in the auricle of the ear, and the condition of the mucous membrane of the mouth were all investigated. More than half of the cases suffered, or had suffered from *chilblains*, while others suffered from cold extremities and dead fingers. The concha of the ear was affected in 8 cases, more than half. The lesions resembled ordinary chilblains. In the mouth were found atrophic patches, erythematous patches, swelling, and atrophy of the mucous membrane.

There seems just a little too much correspondence in these cases for the ordinary reader to absorb, and the conclusion that "lupus erythematosus is not a distinct pathological entity, but an ordinary inflammation of the skin and mucous membranes such as can be produced by any form of trauma or microbic activity, modified by some underlying general constitutional disorder or state in such a way as to lead to healing by destructive changes and atrophy rather than to complete restitution of the part," will not, we think, meet with general acceptance.

Kreibich[1] reports a case of multiple cancer developed on the basis of lupus erythematosus. The lupus had lasted two years before the cancer developed.

Woods[2] reports a case cured by the **X-rays.** There were altogether five exposures, each lasting ten minutes. The disease

was of the scaly type, and the improvement was steady, without any inflammatory reaction. The exposures took place twice weekly, and the tube was seven inches from the diseased part. (The rays must be used cautiously in this disease.—N. W.)

REFERENCES.—[1] *Arch. f. Derm. und Syph.* Bd. li, Hft. 3; [2] *Amer. Jour. Med. Sci.* Dec. 16, 1901.

MALARIA. *James Cantlie, M.B., F.R.C.S.*

During the year 1902 many contributions have been made to the literature of malaria, but no great discovery can be said to have been recorded. Detailed accounts elucidating the mosquito-malarial theory have been brought forward, but the all-important question of the source of the malarial parasite remains practically untouched. That the parasite finds a life-cycle in man and in the mosquito there seems positive proof, but that it originates in either man or the mosquito cannot be believed. Until this great question is decided the malarial problem will never be settled. There seems, however, at present no clue to this mystery.

Mosquitoes.—Two important monographs on mosquitoes have been published in this country during the past year. One, "A monograph of the culicidæ or mosquitoes," by Fred A. Theobald, M.A., F.E.S., is mainly compiled from the collections received at the British museum. The other is "A handbook of the gnats or mosquitoes," by Lieut.-Col. Gen. M. Giles, I.M.S., retired, now in its second edition. The magnitude of these two works shows how carefully the zoology of mosquitoes has been dealt with ever since their connection with malaria was proved. Many contributions concerning the life-history of mosquitoes have also been brought forward.

Hibernation of *anopheles* has been dealt with by Annett and Dutton,[1] by Wright,[2] by Nuttall, Cobbett, and Strangeway Pigg,[3] and by Gorham.[4] It appears from the results of the investigations of these writers that the larvæ of certain species of mosquitoes live in water, "though ice of considerable thickness had formed above them, and they could breathe only the air collected beneath the ice." Nuttall writing on their hibernation in England,[5] states: "Last autumn we had a large number of larvæ of *A. maculipennis* and *A. bifurcatus* in our tanks, mostly larvæ of the former species. As the winter progressed all the larvæ belonging to the former species gradually died off, whereas those of *A. bifurcatus* alone hibernated. These observations therefore prove for the first time that the larvæ of

A. bifurcatus hibernate, the same insects being under continuous observation during the periods of time stated above." Travers[6] states that many specimens of *culex pipiens* were found in the spring of 1901, in a damp cellar in a village near Bedford, England, in a state of hibernation. They were all females, but appeared not to have been fecundated.

Mosquitoes and Malaria.—Confirmation of the power of malaria-infected mosquitoes to inoculate man was given in this country by Manson's experiment of bringing over infected mosquitoes from the Roman Campagna, and allowing them to bite malaria-free individuals. In India, Capt. C. T. Fearnside, I.M.S.,[7] May 18th, 1901, repeated the experiment with positive results. Captain Fearnside was himself bitten on Dec. 29th, by several *anopheles* infected with spring tertian parasites on Dec. 17th, that is, twelve days after feeding. He was again bitten by infected mosquitoes on Jan. 1st and 2nd, and on Jan. 12th, that is, fourteen days after being first bitten, he developed fever. His blood when examined gave negative results until Jan. 18th, when pigmented leucocytes, young spring tertian hæmamœbæ, and pigmented spheres were seen. On Jan. 19th the blood examination showed flagellated spheres, macrogametes. pigmented spheres, spherules, pigmented phagocytes and leucocytes. On the 21st of Jan. the blood gave negative results.

From Japanese experiments in Formosa[8] striking results of the power of mosquitoes to convey malaria is to hand. A battalion of soldiers completely protected from mosquitoes for 161 days during the malarial season, completely escaped malaria, whilst 259 cases of malaria occurred in an unprotected battalion in the same place and during the same period of time.

Nomenclature; Terminology.—To supply a rational terminology indicative of the stages through which the malarial parasite passes, Ray Lankester[9] in a paper communicated to the Royal Society attempts to employ terms which explain themselves. The various stages and the names suggested are as follows: (1) Commencing with the needle-shaped particle, which is injected by the mosquito into the blood of man, Lankester proposes to term this body the *exotospore*. (2) Entering the body it gains a red blood corpuscle. (3) Here it changes its shape, becomes amœbiform—the "amœbula." (4) The amœbula develops, and (5) Breaks up into a number of spherical spores, which are set free by the destruction of the red corpuscles. The parasites when within the corpuscles Lankester terms "enhæmo-

spores." (6) The enhæmospores remain in this phase for several generations, entering other corpuscles and multiplying by further division. (7) After a period the enhæmospores cease to break up, but grow in size and change their shape to "crescents"; these are sexual or male and female bodies. (8) Arrived at this stage the parasite does not develop further in man, (9) but in the stomach of the mosquito the crescents become round, and from one the male spermatozoon develops—the "sperm mother cell," the corresponding female body, being termed the "egg cell." The result of the fertilisation of the female is the (10) "zygote," which assumes a vermiform shape (11) the "vermicule." The vermicule now bores its way out of the stomach, and gaining the body cavity aspect of the stomach acquires a (12) Spherical form, surrounds itself with a structureless membrane, becoming the "cyst" or "spore-cyst." The cysts break up into (13) smaller "spore mother cells," from which the ultimate bodies or exotospores are developed.

Sambon[10] proposes to employ the term *intermittent fevers* to designate all forms of fever caused by malarial infection. He suggests also the designation *hæmocytozoal fevers* as suitably referring at once to their causation and to their anatomical habitat. Sambon classifies intermittent fevers into quotidian, tertian, and quartan; and in place of the terms remittent (Colin and Sternberg), sub-continuous (Bacelli), æstivo-autumnal (Marchiafava and Celli), tropical malaria (Koch), he suggests the adoption of the term sub-tertian (or semi-tertian). The parasites of intermittent fevers belong to the class sporozoa and to the order hæmacytozoa (Danilewsky). For the quartan parasite, Sambon suggests the name *hæmamœba golgii*, and for the sub-tertian *hæmamœba laverani*. To denote the two forms of the life-cycle of the parasite, the same authority advocates the use of the terms "swarming or asexual stage" to denote the fever-producing cycle in man, and "resting or sexual stage" to indicate the mosquito-cycle stage of the parasite.

Distinguishing male from female crescents.—St. Geo. Gray[11] states that in the female crescent the pigment granules are more concentrated, generally grouped in the form of a ring, and in the centre of the crescent body. In the male crescent the pigment is more scattered, lies somewhat nearer one end of the crescent than the other, and is grouped as a rule eccentrically. As a means of diagnosing between male and female crescents the Romanowsky method of staining serves well. According to

Rees,[12] by adopting this method, it will be seen that: (1) The female crescent takes the stain well, and the close grouping of the pigment in ring form, with one or two large masses of chromatin in the centre, become marked features; (2) While in the male crescent the stain is more faint, the pigment scattered, and the chromatin grouped in four or five masses. For an account of the Romanowsky-Ruge-Berestneff method of staining see *Lancet*, April 6th, 1901.

Daniels[13] states that Romanowsky's stain is unrivalled in the demonstration of structure; but for merely diagnostic purposes, the ordinary stains in use, such as borax, methylene blue, hæmatoxylin, gentian violet, toluidine blue, etc., are less complicated, more rapidly applicable, and thoroughly reliable. Woldert[14] gives an easy method of staining malarial parasites; it consists of:—

℞ Saturated solution of Thionin (Cogit's) in 50 percent. Alcohol 20 c.c.	2 per cent aqueous solution of Carbolic Acid 100 c.c.

Of this preparation the supernatant fluid only is used. The cover glass preparation made in the usual manner is dried, placed for one minute in the fixation fluid (0·25 per cent. solution of formalin in 95 per cent alcohol), washed in water, dried, stained for fifteen seconds, washed in water, dried and mounted in Canada balsam. The process is completed in two minutes, and the malarial parasites and nuclei of the leucocytes are stained a reddish violet.

Complications of malaria.—Cook[15] mentions blackwater fever, diarrhœa, dysentery, severe vomiting, meningitis, coma, pneumonia, and bronchitis as complicating affections in the course of fevers due to malaria. He states that he has seen malarial amblyopia in patients who have never taken quinine, the patients becoming totally blind. Neuritis, neuralgia, peripheral neuritis, facial paralysis of a temporary character, and epileptic attacks, according to Cook came with malarial infection, and went when quinine was administered. Gangrene as a complication of malarial fevers is mentioned by Cook and by Osler.[16] Miscarriage is of frequent occurrence, especially amongst native women. Nephritis is stated by Cook, from experience gained in Uganda, to be present in 74 per cent of fever patients, but as a rule albumin rapidly disappeared when the temperature subsided. Phlebitis is not uncommon in chronic cases of malarial disease, especially in persons weakened by

insufficient food. Anæmia is a common sequel. Cook mentions the case of a European in Uganda, in whom after a sharp attack of fever, treated with quinine, the red corpuscles were lowered to 3,880,000 per c.mm., and hæmoglobin to ·74 per cent of normal.

Rupture of the spleen.—Spontaneous rupture of the spleen during an access of intermittent or pernicious fever is possible.[17] The softening of the spleen, the adhesions to neighbouring organs and structures, by causing immobility predispose to the rupture. In three cases out of five reported, the rupture was near the hilum in the shape of a star. The writer has seen several cases of rupture of enlarged spleens in Hong Kong, and noted that in every case the rupture took place usually behind the hilum, and extended in a longitudinal direction as if the splenic coverings had been cut by a sharp knife.

Acute pulmonary complications have been reported upon by Crespin and Mailfert.[18] They state that acute bronchitis is a frequent complication in malarial fevers, and that the bronchial lesion is most marked at the bases. Pneumonia may develop during or after the malarial attack, and in chronic cases is very serious. They mention also an apyrexic pneumonia of grave import. Pneumonia during malaria is due to the pneumococcus, and not to the hæmatozoa. The same authors also describe an apical consolidation in malarial cases simulating phthisis, and a curious feature is the tendency for the opposite apex to become involved in a day or two after its fellow. In such condition **Quinine** is to be freely exhibited.

Carcinoma and malaria.—Löffler[19] refers to a statement by Krzowitz, published in 1775, concerning a woman suffering from cancer of the breast in whom the tumour disappeared after contracting a double tertian fever. Löffler suggests inoculating persons suffering from cancer with a mild form of malaria, and supports the idea that amongst tropical natives in whom malarial affections are well nigh constant, cancer seems to be exceedingly rare.

Malarial iritis.—White[20] reports three cases of iritis in all probability due to malarial infection. In each case the reaction to quinine was most marked. Yarr[21] deals fully with malarial affections of the eye, of which he shows there are several.

Tongue markings.—Lofton[22] draws attention to one or two or more dark lines running from the base to the tip of the tongue separated by a tract of clean mucous membrane.

Latent and masked malaria.—Craig[23] defines "masked malaria" as an infection in which malarial symptoms are hidden by those of some other disease, and "latent malaria" as a condition in which although the parasites are present in the blood, no symptoms of malaria are present. By far the greater number of masked and latent malaria cases occur in patients suffering from diarrhœa and dysentery and pulmonary tuberculosis.

Agglutination of the blood in malaria.—Grixoni[24] experimented on the known property of malarial blood to produce agglutination of the red corpuscles. His experiment is summarized as follows[25]: "If two drops of malarial blood (or one of malarial and one of healthy) are placed on cover glasses and then brought into contact and closely pressed together to get a uniform layer, in less than a minute the red corpuscles group themselves into masses of from 3 to 5 up to 80 to 100 or more. The leucocytes take no part, and if they are included in one of the masses they are surrounded by a zone free from cells, as if they exercised a negative chemiotactic force. The ordinary roulette arrangement is never met with in a well-made malarial preparation. In seven patients who had been free from malarial attacks for periods of from one to six months and were in good health, the blood still had this agglutinating power. In three of them which entered the hospital for non-malarial febrile complaints, after a few days of fever without any parasites, fever of the old malarial type recurred and parasites were then found; these attacks occurred when there were no mosquitoes about, and so were true relapses and not reinfections. The author believes that the agglutinative power is not merely the survival of the former state of the blood, but represents a continuous production in minute quantity of the agglutinating substance by organisms existing in the body. Not only does the return of the malaria in these three cases point to this, but also the fact that in bad and old-standing cases energetic treatment will cause the agglutinating property rapidly to disappear; if this property can rapidly disappear in some cases, its persistence in others is probably due to its continuous production. So that the phenomenon of agglutination serves to diagnose latent malaria which evades all other diagnostic methods. By dilution of the blood with normal saline solution an approximately quantitative estimation of the agglutinative power was obtained, and thus a very marked action of quinine was demonstrated."

Panichi and L. Monaco[26] found that malarial blood had the

power of agglutinating the blood of normal or of malarial subjects. This agglutinative power was present in the incubation period, reached its maximum during the period of pyrexia, and disappeared when there no longer existed fever and parasites in the blood. In malarial blood quinine destroyed the agglutinating power; in non-malarial blood quinine did not seem to have this property.

Freedom from malaria in paludal districts.—This topic is discussed by Celli and Gasperini.[27] These authorities state that in certain localities of Tuscany—namely, the swamps of Fucecchio and Bientina, the Lago di Massaciuccoli and marshes surrounding it, and the Tuscan littoral from Collesalvetti and Leghorn to Viarregio and Pietrasanta—malaria, which at one time widely prevailed, is now almost unknown. There are numerous breeding places swarming with larvæ of anopheles (claviger and pictus), and myriads of adult mosquitoes; and although many persons, after residence in malarial districts, return with their blood impregnated with malarial parasites, the disease does not spread in these favoured districts of Tuscany. At present this phenomenon is inexplicable; and the supposition that in Italy, as in England, France, and Germany, many districts previously malarial have ceased to be the habitat of the malaria parasite, seems the only possible explanation.

TREATMENT.—*Prophylaxis.*—The several expeditions sent to the West Coast of Africa have dealt in a serious manner with the prevention of malaria by extermination of mosquitoes. The method adopted is the removal of all possible breeding places for the insects. It is well known that the anopheles are perhaps the most particular and dainty of all mosquitoes in the selection of their breeding places, and consequently, as these mosquitoes are the sole hosts of the malarial parasites, their destruction is rendered more hopeful. In addition, however, to the absence of malarial disease, to keep good health in the tropics it is necessary to adopt other precautions, such as tempe ance in eating and drinking, plenty of exercise, quinine twice a week in malarial seasons, good food, etc., in addition to the use of the mosquito net.

F. Plehn[28] recommends as important prophylactic agents against malaria, well-built houses, freely ventilated and drained, and guarded by mosquito netting. Persons going out at night should have their heads, arms, and feet properly protected from mosquitoes. These, however, he regards as affording only

limited protection, by far the most efficient prophylaxis being obtained by the use of **Quinine.** Of the many methods of administration recommended, F. Plehn finds the best results follow the exhibition of $7\frac{1}{2}$ grains of quinine every four or five days. He considers it impossible to obtain permanent protection in this manner, and evolves a plan of prophylaxis based upon the immunity acquired by natives owing to their having acquired the infection in childhood. Plehn argues that dosing with quinine prevents the body becoming immune, because the malarial organisms are killed off before the body has acquired the degree of resistance necessary to make the immunity complete. He would therefore give sufficient quinine only to prevent a serious manifestation of the disease, but not sufficient to kill all the organisms present in the blood, and thus after a considerable length of time bring about a permanent immunity.

According to Read,[29] quinine is best administered as follows : (1) For male adults in good health, tabloids in 15 gr. doses every fifth day ; for those in poor health, the solution used in the same way, or 15 gr. powder in a tablespoonful of porridge or milk ; (2) For female adults, 8 grs. should be given instead of 15 ; pregnant women may take $2\frac{1}{2}$ grs. daily, in either of the above ways, from the beginning of pregnancy ; (3) Children of either sex under one year, $\frac{1}{2}$ gr. of the powder every third day in a spoonful of milk, followed by a spoonful of jam or honey ; those from one to five years, 1 gr. every third day ; from five to ten years, 2 grs. every third day ; from ten to fifteen years, 3 grs. ; above fifteen years, the ordinary adult dose, taken in the same way.

Tinctorial Prophylaxis.—Nuttall and Shipley find that certain colours, such as navy blue, dark red, reddish brown, scarlet, and black, in order of tabulation, are more attractive to mosquitoes than articles coloured slate grey, violet and leaf green, or light yellow. The white garments affected by most native races in the tropics are therefore not without a prophylactic value.

Euquinine.—Mori[30] regards **Euquinine,** in 3 to $7\frac{1}{2}$ grain doses daily, given for some five months before the malaria season, as an efficient protection.

Destruction of mosquitoes.—Blanchard[31] recommends the use of formaldehyde vapour freshly generated from a lamp, to drive mosquitoes from a room, or pyrethrum pastilles may be burned in the bedroom. He advises painting the actual sting with tincture of iodine as soon as the bite is discovered. Rosenau[32] holds that formaldehyde gas is a feeble insecticide unless evolved

in large quantity ; but extols sulphur dioxide as the best known method of destroying mosquitoes.

Inoculation against malaria.—Kulin,[33] practising in West Africa, employed the curative serum employed for horse sickness in the treatment of malaria in man. He was led to its use by the close analogy between malaria in man and sickness in the horse. Kulin injected 1 or more c.cm. of the serum into the forearm of some twenty white men suffering from unmistakable malaria. A curative effect was frequently noted, and in view of the danger of quinine setting up blackwater fever, Kulin suggests the serum for horse-sickness as a substitute for quinine.

Subcutaneous injections of quinine.—Ferguson[34] recommends the **Bihydrobromate of Quinine,** which dissolves readily in 6 parts of warm water, administered hypodermically. He injects 3 grains of the drug subcutaneously, dissolved in 20 minims warm water, and six injections, on alternate days, sufficed to cure. Ferguson advises the injection to be made two or three hours before the expected paroxysm. Carr-White[35] usually injects 5 grains of the **Bisulphate of Quinine** repeated every three days. He selects the subcutaneous tissues at the angle of the scapula, and two or three injections generally suffice.

Powell[36] employs the **Hydrochlorosulphate of Quinine** in 18 or even 36 grains at one injection. One part of the salt is dissolved in 3 or 4 parts of a 1 in 5,000 solution of perchloride of mercury. He condemns the use of hypodermic tabloids of any drug as introducing risks of sepsis.

Dowler[37] uses : (1) The ordinary **Sulphate of Quinine dissolved in Tartaric Acid** ; (2) The neutral **Sulphate of Quinine** ; but he prefers (3) The **Bi-hydrochloride of Quinine,** as giving less pain.

Barnett[38] states that the soluble quinine sulphate in saturated solution has given excellent results. Ten grains administered hypodermically has the same effect as 30 grains by the mouth.

In grave cases of malaria occurring in Calabria, Francesco[39] recommends the hypodermic injection of **Bi-chloride of Quinine** in large doses up to 30 grains, followed during convalescence by **Euquinine** by the mouth.

Administration of quinine by hypodermoclysis.—Gray[40] advises intravenous injection of $\frac{1}{4}$ to $\frac{1}{2}$ or 1 per cent of quinine in deci-normal **Salt Solution,** The solution he prefers is 30 grains of bimuriate of quinine and iron in a pint of deci-normal salt solution. The solution may be injected into a vein or into

the subcutaneous tissues, and if done slowly and with antiseptic precautions is never followed by untoward symptoms.

Arseniate of quinine.—Benakz[41] advocates the use of large doses of arseniate of quinine—18 grains daily in the form of cachets or pills, in the treatment of malarial diseases. He regards the arsenic present in the salt as a negligible quantity, and innocuous as far as its therapeutic specificity is concerned. Arseniate of quinine acts both as a febrifuge and as an anti-periodic ; no deleterious sequelæ accompanied its administration ; and it has produced in Benakz's hands excellent results in various forms of malarial disease.

Quinine and Creosote.—Cipriani[42] advocates the exhibition of **Chininum Eosolicum** (quinine and creosote) in 7½ grain doses twice daily. The drug can be combined with iron, strychnia, and arsenic.

Methylene blue.—Iwanoff[43] finds that **Methylene Blue** acts chiefly on the protoplasm of the tertian parasite, whereas quinine effects the pigment (chromatin). By administering 5 grains thrice daily he found that in the tertian parasite the changes began at the end of the second day, and affected only the full-grown forms of the parasite, whereas the younger forms remained unchanged. Quinine acts in quite the reverse way, for it is the younger forms that are chiefly attacked by the drug, and the adult forms scarcely at all.

Dunn[44] prescribes :—

℞ Methylene Blue	gr. ij-iij	Quinin. Sulphat,	gr. ij
Ferri carbonat.	gr. j	Ac. arsenosi	gr. $\frac{1}{50}$

M. ft. caps. No. i. S. In acute fevers one three times daily ; in chronic forms one every four to six hours.

Methyl blue and Methylene blue.—Rose[45] draws attention to the substitution by druggists of methyl blue for methylene blue. The former is inefficient in the treatment of malaria, and may be distinguished from the methylene salt as follows : A dilute aqueous solution of methyl blue becomes decolourized on the addition of ammonia water, while a solution of methylene blue, even when very dilute and light coloured, is not so decolourized.

Malarial hæmaturia.—Watkins,[46] after clearing out the bowel by **Calomel**, uses the following preparation hypodermically :—

℞ Quinine bisulph.	℥ij	quired.)	
Sulph Acid, dil., q.s. (with heat very little is re-		Carbolic Acid	gtt. ij
		Water, q.s. ad	℥ss

M. Sig. twenty drops hypodermically every two hours until patient is throughly cinchonized ; then give every few hours.

Spearman[47] condemns calomel as a purge in malarial hæmoglobinuria, and never uses quinine until hæmorrhage has ceased for twenty or thirty hours, when full doses of the **Bimuriate of Quinine** with **Urea** are given hypodermically every four hours. When convalescence is fairly established a pill of **Quinine Sulph., Ferri Sulph.,** and **Strychnia Sulph.,** is recommended. He states that the occurrence of more than one attack of hæmorrhagic fever in the same person should promptly urge him to seek a home beyond the reach of the poison, for each succeeding attack only renders one more liable to other attacks."

Arrhenal in malaria.—W. G. Ross[48] relates four cases in which a new cacodylate, called **Arrhenal,** recommended by Gautier, of Paris (*Arch. de Parasitologie*), was administered for malaria. The patients were under the care of Manson at the Seamen's Hospital, Albert Docks, London. (1) In a case of a patient "with a small quartan and a moderate double tertian infection" arrhenal had no beneficial effect, whilst quinine had a rapid action. (2) In a patient with a moderate benign tertian infection arrhenal was ineffective, whilst quinine was successful. (3) In a patient whose blood showed "young forms of the malignant parasite and crescents in addition to ring forms," the arrhenal had a doubtful curative effect, but although continued in full doses and for a period of seven days, a severe rigor occurred which yielded at once to quinine. (4) In a patient whose blood showed a few crescents arrhenal was ineffective. Ross concludes by remarking, "that in the treatment of severe malarial attacks arrhenal is useless, that it does not prevent relapses, and can in no way be considered as an efficient substitute for quinine." The dose of arrhenal employed was 5-10 c.grms. administered intramuscularly and repeated from day to day.

REFERENCES.—[1]*Brit. Med. Jour.* April 27, 1901 ; [2]*Ibid,* April 13, 1901 ; [3]*Jour. of Hygiene,* vol. i, pp. 4-44 ; [4]*Jour. Boston Soc. Med. Sciences,* Jan. 15, 1901 ; [5]*Brit. Med. Jour.* Jan. 15, 1901 ; [6]*Ibid,* May 9, 1901 ; [7]*Ibid,* May 18, 1901 ; [8]*Med. Rec.* April 5, 1902 ; [9]*Lancet,* April 5, 1902 ; [10]*Jour. Trop. Med.* Sept. 15, 1902 ; [11]*Brit. Med. Jour.* May 3, 1902 ; [12]*Pract.* March, 1901 ; [13]*Brit. Med. Jour.* April 6, 1901 ; [14]*Phil. Med. Jour.* April, 1900 ; [15]*Jour. Trop. Med.* March 1, 1902 ; [16]*Ibid,* Dec. 1900 ; *Johns Hopkins Hosp. Bull.* Feb. 1900 ; [17]*Bull. de l'Acad. de Méd.* Nov. 5, 1901 ; [18]*Arch. Gen. de Méd.* April, 1901 ; [19]*Deut. Med. Woch.* Oct. 17, 1901 ; [20]*Jour. Trop. Med.* Sept. 16, 1901 ; [21]*Ibid,* Dec. 1899 ; [22]*New York Med. Jour.* April 12, 1902 ; [23]*Gaz. deg. Osped.* May 12, 1901 ; [24]*Med. Rec.* Feb. 15, 1902 ; [25]*Brit. Med. Jour.* July 12, 1901 ; [26]*Rif. Med.* July,

1901 ; [27]*Polyclinico*, Aug. 17, 1901 ; [28]*Deut. Med. Woch.* Dec. 5, 1901 ; [29]*Jour. Trop. Med.* Jan. 15, 1902 ; [30]*Cent. f. Bakt.* June 10, 1901 ; [31]*Bull. de l'Acad. de Méd.* 1901, vol. lxv, p. 223 ; [32]*Bull. No. 6 Hyg. Labor.* Sept. 1901 ; [33]*Arch. for Schiff und Trop. Hyg.* Nov. 1901 ; [34]*Brit. Med. Jour.* Feb. 22, 1902 ; [35]*Ibid*, May 3, 1902 ; [36]*Ibid* ; [37]*Ibid* ; [38]*Ibid* ; [39]*Treatment*, April, 1902 ; [40]*Memph. Med. Monthly*, Jan. 1902 ; [41]*Méd. Orientale*, April 25, 1902 ; [42]*Treatment*, Dec. 1901 ; [43]*Deut. Med. Woch.* 1901, No. 18, p. 276 ; [44]*Med. Rec.* May 2, 1901 ; [45]*Post-Grad.* Sept. 1901 ; [46]*Therap. Gaz.* May 15, 1901 ; [47]*Ibid*, May 15, 1901 ; [48]*Jour. Trop. Med.* Dec. 15, 1902.

MAMMARY CANCER. (See "Cancer.")

MANIA. *James Shaw, M.D.*

Diagnosis.—Dr. H. D. M. Alexander[1] finds insomnia, restlessness, *malaise*, and rising blood-pressure to be the premonitory symptoms of recurrence of excitement in relapsing mania. The premonitory and early symptoms in a recent maniacal case of mine were headache, restlessness, insomnia, increased activity, loquacity, "wildness of eye," and shrillness of voice.

Treatment.—Dr. Alexander (*loc. cit.*), on noticing the premanical depression, has often warded off the acute attack by confining the patient to bed on a low diet and amidst quiet surroundings.

Dr. Ragg[2] reports a case of mania in which resort to the **Bromide** treatment, somewhat as advocated by Neil McLeod (see *Medical Annual*, 1901, p. 327), gave excellent results. The potassium instead of the sodium bromide was used. A total of 19 drachms was given in nine doses, between 4 p.m. on the fifth day of the illness and 4 p.m. on the sixth. Milk was given freely after each dose and in the four or five days' sleep. On the twelfth day the patient, having thrown off the drowsiness, had practically returned to his normal mental state, although he remained for a few days physically weak and rather emotional.

In a case of hysterical mania, Dr. Fletcher Beach[3] tried the effect of **Hyoscine** injections, beginning with $\frac{1}{200}$ of a grain, and working up to $\frac{1}{70}$, and in three weeks the patient was cured. The patient of mine above mentioned became extremely excited, and was seen by me on the third day of the actual attack. She was given sufficient **Hyoscine Hydrobromide** (gr. $\frac{1}{100}$ hypodermically, and after forty minutes gr. $\frac{1}{200}$ by the mouth), on that day, to procure a long sleep, and again on the fifth day, gr. $\frac{1}{66}$ hypodermically ; **Sodium Bromide** in drachm doses being

administered in the interval and for two days after the second sleep, until two ounces in all had been taken. The patient was kept in bed on liquid diet practically till the ninth day. On the tenth day of the illness, that is, within a week of the commencement of treatment, she had thrown off all drowsiness and was cured of her maniacal excitement. She had had three previous attacks, which had been exactly similar to this one up to the third day, but had gone on, and necessitated asylum treatment for some months. See *Medical Annual*, 1898, p. 317, for case of acute mania successfully treated by hyoscine alone.

REFERENCES.—[1]*Lancet*, July 5, 1902 ; [2]*Brit. Med. Jour.* Nov. 3, 1900 ; [3]*Lancet*, May 31, 1902.

MEASLES. *E. W. Goodall, M.D.*

In an article on the preliminary rashes in measles, Thursfield[1] gives an account of three cases in which these rashes appeared. "In two cases the rash was a fine papular eruption on the face, behind the ears, and on the neck, very distinct, and easily seen and felt ; while the third had a scarlatiniform eruption, which was not, however, uniform, but blotchy, over the neck and shoulders." As Thursfield remarks, these prodromal rashes are "familiar to the medical officers of the hospitals of the Metropolitan Asylums Board, where they appear as cases of scarlet fever." They are, indeed, well known to all who have much to do with infectious diseases. The most common is the scarlatiniform rash. This is usually confined to the trunk, diffuse, and hardly if at all punctate. But it may involve the extremities, and may be punctate. It is not infrequently mistaken for scarlet fever. Another prodromal rash occasionally seen in measles is urticaria. It is a question whether the papular rash, appearing behind the ears, is not really the very earliest manifestation of the proper measles eruption. This is very apt to appear indefinitely about the face and neck for a day or two before it comes fully out. Attention was drawn to these rashes by Adkins in the fourteenth Report of the Statistical Committee of the Metropolitan Asylums Board (1899).

REFERENCE.—[1]*Lancet*, August 18, 1900.

MELANCHOLIA. *James Shaw, M.D.*

TREATMENT.—Dr. W. R. Dawson[1] reports a case in which polyuria and recurrent melancholia ran contemporaneously for many years. During the more severe mental attacks sugar was found in the urine, and with the disappearance of the sugar

under treatment the mental symptoms vanished, returning slightly with the recurrence of the glycosuria, and passing away again as it diminished. Persistence in treatment produced a continuance of physical and mental health such as the patient had not had for a long time, and at the date of writing this had lasted nearly a year.

Dr. Leeper[2] records three cases of melancholia with non-diabetic glycosuria. Two of the patients—one of whom had a delusion of intestinal obstruction—recovered when, under treatment with **Codeine,** the sugar disappeared from the urine. The dose varied from ½ a grain daily, to 1 grain three times a day. The third patient, who had also the delusion of obstruction, improved bodily and mentally, but retained his delusion.

Dr. J. Clausse[3] in his thesis describes some careful observations made by him on the effects of **Codeine Phosphate** on fifteen patients. It was used with especially good results in melancholia with acute feelings of misery, epigastric pains, shallow respiration, feeble secretions, and general bodily depression. The dose was 4 to 6 c.g. hypodermically, or 6 to 8 by the mouth. Excessive dosage caused headache, nausea, vertigo, tachycardia, and myosis. The drug was contra-indicated in all states of intense excitement, including simple mania, as it increased such disorders. Dr. White[4] believes there are many forms of melancholia in which **Morphine** is the sheet-anchor.

Drs. H. D. M. Alexander and Lewis Bruce[5] have succeeded in shortening the attack in a number of cases of melancholia by bed treatment and fluid diet, with **Potassium Citrate** in the passive, and **Nepenthe** in the agitated cases, the bowels being attended to, and, if sleep could not be otherwise procured, **Paraldehyde** given in the passive, and **Trional** in the agitated form. While taking the opiate (nepenthe) the patient should be on ordinary full diet, and have a small dose of **Calomel** every second or third day. The opium should be gradually increased, and then, as improvement is observed, diminished.

REFERENCES.—[1]*Med. Press. and Circ.* see *Pract.* March, 1902 ; [2]*Jour. Ment. Sci.* Oct. 1901 ; [3]*Brit. Med. Jour. Epit.* June 21, 1902 ; [4]*Lancet,* May 31, 1902 ; [5]*Ibid,* Aug. 24, 1901, and July 5, 1902.

MEMBRANOUS COLITIS. (See "Colitis.")

MENINGITIS. (See "Cerebro-Spinal Meningitis.")

MENSTRUATION (Disorders of).

Arthur E. Giles, M.D., B.Sc., F.R.C.S.

Amenorrhœa.—In cases where neither constitutional ill-health nor an objective local condition is present to account for amenorrhœa the following treatment has been recommended[1]: Mix 1 part of crystallized **Apiol** with 5 parts of sterilized oil, and inject 15 minims subcutaneously every day.

Menorrhagia.—In cases where no pathological condition is present, or where operative treatment is refused, or where an examination is contra-indicated, as in the case of unmarried girls in the first instance, the following treatment recommended by Lafond[2] may be adopted :—

℞ Calcium Chloride grs. cxxxv | Water ℥vj
Syrup ℥ij |
M.

A soup-spoonful of this mixture may be taken twice a day for about eight days. It is advantageous to prescribe it about a week before the expected period. The pills of M. Dalché, the formula for which follows, may be prescribed concurrently for three or four days before the period and continued throughout the flow, three being taken daily :—

℞ Ergotin grs. jss | Powdered Digitalis gr. 0.15
Quinine Sulphate gr. 0.30 | Powdered Kola a sufficiency
M. To make one pill.

Barton Cooke Hirst states that there is a metrorrhagia in young girls due to glandular and interstitial endometritis, which, if neglected, may seriously impair their health; it is curable by curettement (perhaps repeated) and by the removal of any cause of pelvic congestion that may be present.

Dysmenorrhœa. Etiology.—Theilhaber[4] believes that more than 75 per cent of the cases of painful menstruation are not dependent upon anatomical causes. The pain is really due to tetanic contraction of the circular muscle at the os internum, such as occurs in other sphincter muscles in neurotic subjects. He opposes Menge's theory that dysmenorrhœa is due simply to an exaggeration of the contractions of the longitudinal muscular fibres, which always accompany normal menstruation. If, he argues, the symptom is due purely to mechanical obstruction it should invariably disappear after childbirth, which is not the case in nervous and hysterical women. Uterine colic cannot be due only to the passage of clots, since in many typical cases of dysmenorrhœa there is a free escape of fluid blood.

Moreover, the pains are often most severe from twelve to twenty-four hours before the flow appears, instead of on the second or third day, when it is most profuse and clots usually appear.

Herman[5] distinguishes between congestive and spasmodic dysmenorrhœa. The former is due to the pelvic congestion which normally precedes and accompanies the early part of the flow, and presents the following characteristics: "It is a general aching diffused over the whole pelvic region—over the lower abdomen, lower part of back, and often down the thighs. It is often accompanied with aching in the breasts. It is a continuous pain, not one that comes in short, sharp paroxysms. You may be told that it comes and goes, but when you inquire as to the length of each attack and remission, the answer will be that the pain continues steadily for two or three hours at a time, and then remits for an hour or two. It comes on gradually; you are not told of its waking the patient in the middle of the night. It begins from a day or two to a week before menstruation, and is not relieved until the flow has become as copious as is customary for that patient. It is always better while the patient is lying down. It is never bad enough to produce objective evidence of severe suffering. The patient is in least discomfort when she is still; she does not writhe with pain, nor vomit, nor perspire, nor faint. She may look languid and tired; but there is no other external sign of suffering."

Spasmodic dysmenorrhœa is due to painful uterine contractions; this is dysmenorrhœa in the literal sense of the word. "The pain of spasmodic dysmenorrhœa is far more severe than any other kind of menstrual pain. It is common for patients to say that when it is present they cannot lie still; they roll about with pain, it doubles them up, keeps them awake at night, makes them perspire and sometimes faint. In about one-fourth of the cases it causes vomiting. When the pain is so severe as this the patient is incapacitated while it lasts. Cases of spasmodic dysmenorrhœa are not all equally bad; there are degrees in this kind of pain as well as in others. But menstrual pain of extreme severity is almost always of the spasmodic kind. This great severity is the most characteristic feature of spasmodic dysmenorrhœa. The pain of pelvic congestion is never so severe. A patient who has only this latter pain may lie down because she is more comfortable when doing so, but if any strong reason exists why she should not lie down she can

keep about. The pain of spasmodic dysmenorrhœa is of short duration. I have known it last ten minutes only, but during that time be so severe as to make the patient vomit. It comes on suddenly; sometimes wakes the patient in the middle of the night. Its duration is usually less than twenty-four hours, and it only exceptionally lasts longer than two days."

TREATMENT.—In the anæmic form Campbell[6] lays stress on the importance of overcoming constipation. He advises **Iron** in the form of the ammoniated citrate of iron mixture. In cases where the tongue is foul and flabby, a course of **Arsenic** together with aloetic **Purgatives** should precede the iron. For a week before and for the week of the period the iron should be stopped and the following given three times a day :—

℞ Potass. Bromid.	gr. x	Tr. Bellad.	♏ x
Tr. Cimicifugæ	♏ xx	Aq. Chlorof.	℥ss

This will suit a large proportion of cases. Where it fails a $\frac{1}{4}$ grain of extract of **Cannabis Indica** two or three times a day during the painful period will answer.

For uterine colic (spasmodic dysmenorrhœa) Herman considers that the best drugs are **Antipyrine** and **Phenacetin.** We can strongly endorse this recommendation, and to these drugs we may add **Ammonol,** which often gives excellent results.

For a large number of cases **Dilatation** of the uterine canal answers well. According to Herman, it is specially indicated in the spasmodic form, where a cure may be expected in from two-thirds to three-fourths of the cases. Campbell states that dilatation is successful mainly in cases with slightly enlarged or anteflexed or inflamed uteri with normal appendages. He recommends that dilatation be followed by the insertion of a gauze drain. This is also advocated by Riddle Goffe.[7] Instead of the gauze drain, Gill Wylie[8] uses a hard rubber drainage-tube the size of a lead pencil. Campbell holds that the removal of diseased appendages for dysmenorrhœa is not to be done unless other reasons than pain demand their removal. Women with painful ovaries are liable to have painful stumps after operation. In this view we entirely concur.

The Menopause.—For climacteric hæmorrhages, and in cases where curetting is contra-indicated, Gerstenberg[9] recommends the application of a 40 per cent solution of **Formaldehyde** within the uterine cavity. He introduces it on an applicator, and says that it causes no pain nor other bad effects. The patient is

kept in bed for two days. It may be necessary to repeat it once or twice.

Handfield Jones[10] combats the impression, which is too prevalent among the laity, that irregular *hæmorrhages at the menopause* are of little consequence. He had critically analysed, in his practice, all those cases where the patients had complained of excessive loss, attributed more or less confidently to a disturbance "natural" to the period of the climacteric. From these cases he isolated a group in which an obvious gross lesion, such as carcinoma of the cervix, a considerable fibroid, etc., was easily detected. There then remained a large number where the cause of the hæmorrhage was not so readily explained. Here, if anywhere, ought to be found the material to justify the view that at the menopause frequent and excessive hæmorrhage is to be expected in the natural order of things. Yet on analysis it was discovered that, with one or two doubtful exceptions, every one of the so-called functional hæmorrhages could be referred to a definite though perhaps relatively slight structural cause, upon the removal of which the hæmorrhage ceased. Among these causes were to be found such conditions as small polypus of the cervix, fungoid hypertrophy of the uterine mucosa, multiple adenoma of the same structure, retroversion of the uterus, and the early development of carcinoma or sarcoma. He urged that these considerations were of the utmost importance in order to secure the early diagnosis of cases of malignant disease.

With regard to the administration of **Ovarian Extract** (oöphorin tablets) to mitigate the distressing effects of the artificial menopause, see "Ovaries."

REFERENCES.—[1]*Rev. Méd.* March 27, 1901; [2]*Jour. de Méd. de Paris*, Aug. 4, 1901; [3]*Therap. Gaz.* Dec. 1901; [4]*Cent. f. Gyn.* No. 3, 1902; [5]*Brit. Med. Jour.* May 17, 1902; [6]*Med. Press and Circ.* June 25, 1902; [7]*New York Med. Jour.* Feb. 1, 1902; [8]*Ibid.*; [9]*Cent. f. Gyn.* No. 34, 1900; [10]*Polycl.* April, 1902.

MORPHINE HABIT. *Graeme M. Hammond, M.D., New York.*

Lott[1] contributes an interesting article on this subject in which he recommends the use of **Hyoscine Hydrobromate** pushed to the point of producing intoxication, and claims that by this method the patient may be cured of taking enormous doses with but little or no suffering. The patient is put to bed, and a reliable nurse attends him continuously for some days at least. He begins with an injection of $\frac{1}{100}$ of a grain, and after this injects $\frac{1}{200}$ of a grain every thirty minutes to an hour, for from

twenty-four to forty-eight hours, until the patient has had from forty to sixty injections, sometimes decreasing it, and sometimes omitting a dose altogether, watching carefully the pulse and respiration; the object being to secure hyoscine intoxication, which is readily recognized by the restlessness, dilated pupils, dry throat, and hallucinations which the drug produces. When this stage is reached the remedy is given just often enough to keep up the delirium from twenty-four to forty-eight hours. It may be necessary during this period to give a small dose of **Morphine,** even $\frac{1}{4}$ grain, once, twice, or three times; it will not affect the result in the end. Generally it is not necessary during this period to give anything else, though it may be advantageous to use **Strychnine** or **Nitroglycerin,** or **Digitalis** to sustain the heart; but always remember that hyoscine and morphine are antidotes for each other. If the patient should get too much of one, give the other. During the period of delirium it is necessary to give the patient water frequently, as the throat and mouth are very dry. At the end of this time the patient is generally permitted to come from under the influence of the drug, and after a few hours reason is restored. He no longer craves morphine. At this point hyoscine is discontinued and the patient is given injections of **Pilocarpine** in $\frac{1}{8}$-gr. doses, which are to be repeated every hour until the physiological effect is produced; then the term between doses is to be lengthened, but kept up sufficiently often to maintain the effect desired, which is the elimination of the hyoscine. At the end of this period the patient is apt to suffer from pain in the knees, elbows, and back, and there may be diarrhœa. For this latter condition **Subgallate of Bismuth** should be given in from 30- to 60-gr. doses, with fluid extract of **Coto Bark** in from 20- to 30-drop doses in water at the time of giving the bismuth. For the restlessness and sleeplessness a bath, either hot or cold, or the faradic current will be found beneficial; but sometimes it will be necessary to give bromides, or even chloral. The pains can be relieved by rubbing with liniments, or by electricity, bathing, pilocarpine, strychnine, atropine, or a few doses of hyoscine.

REFERENCES.—[1]*Tox. Med. Jour.* Nov. 1902; *Therap. Gaz.* Jan. 15, 1902.

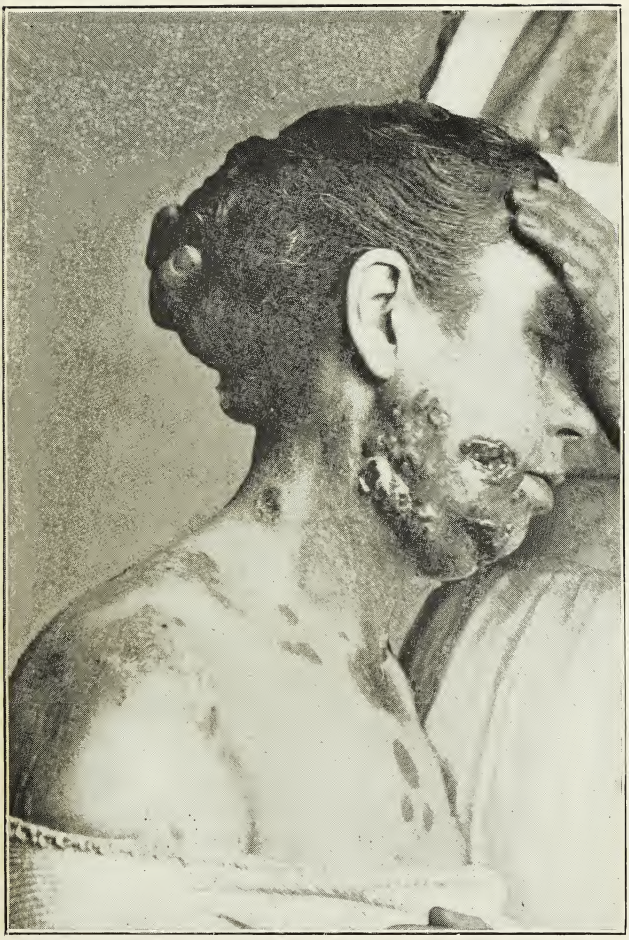
MYASTHENIA GRAVIS. *R. Hutchison, M.D.*

Considerable attention has been paid to this disease, but up to the present time no pathological change has been demonstrated either in the nervous system or muscles to account for

the condition. In the *Neurologisches Centralblatt* (July, 1901), however, there is published by Laquer and Weigert a case in which definite changes were found in the muscles. The case is that of a man, aged thirty years, who in 1896 suffered from giddiness, palpitation, and feeling of weakness after exertion. In 1900 he experienced difficulty in raising the arms, and at the same time had drooping of the right upper eyelid ; a few months later there was marked weakness in chewing and also in the muscles of the larynx, and after prolonged reading aloud the patient became hoarse. The muscular weakness was well shown in the deltoid muscle. After examination of the patient, a severe attack of cardiac failure occurred, from which he was with difficulty revived. After four months, improvement took place and he returned to work, but in four weeks he again became weak, with difficulty in swallowing, nasal speech, and weakness of the neck and lumbar muscles, so that he could no longer raise himself. The muscles gave the myasthenic reaction. The difficulty in respiration became distressing owing to the paresis of the diaphragm and intercostals, but the patient remained fully conscious till the time of death. At the necropsy there was found in the situation of the thymus gland a tumour about 5 cms. in length and breath, and about 3 cms. in thickness. It lay in close connection with the pericardium, but did not involve the great veins. From the lungs a tag had become firmly adherent to the tumour. The nervous system and the muscles appeared to the naked eye to be normal. On microscopical examination the tumour was found to consist of small cells, lymphoid cells which form the chief part of the normal thymus, larger epithelioid cells also normally present in the thymus, and Hassall's bodies. In many of the veins within the tumour the walls were destroyed and the tumour cells had grown into the lumen, and the same appearance was also present in the arteries. But of most exceptional interest was the condition found in the muscles. In the deltoid and diaphragm it was found that at many points both in the sheath of the muscles and between the muscle fibres there was a great invasion of small lymphoid cells, which closely resembled those found in the thymus tumour, and to a lesser extent the larger epithelioid cells were also present. The muscle fibres themselves, however, appeared to be normal. In the heart-muscle similar foci of cells were found, but much less than in the skeletal muscles. Nothing abnormal was found in the nerves, spinal cord, or brain. The

PLATE XXIII.

MYCOSIS FUNGOIDES.



Jamieson's case, June, 1902.

PLATE XXIV.

MYCOSIS FUNGOIDES.



Jamieson's case, October, 1902.

combination of myasthenia gravis with disease of the thymus is noteworthy, and though the same condition may have been present in some cases, it is hardly likely that such marked changes in the muscles should have escaped the observation of those who have carefully examined these cases microscopically.[1]

REFERENCE.—[1]*Lancet*, July 20, 1901.

MYCOSIS FUNGOIDES. *Norman Walker, M.D.*

This disease has been dealt with in several previous numbers of the *Annual*, and photographs of cases at various stages have been presented. The subject of treatment has, however, had to be dealt with only in vague generalities, for no treatment had proved of any really lasting benefit. This year, however, we are able to throw a brighter light upon that side of the disease.

Dr. Allan Jamieson[1] reports on the case of a woman who had suffered for ten years. When seen in June, 1902, she presented a typical example of this disease. The condition of the face and neck is well shown in the photograph (*Plate XXIII*), but there were numerous tumours in different parts of the body, as well as those eczematoid patches which so often precede tumour formation. It was thought reasonable to try the effect of the **X-rays** upon the case, and accordingly that treatment was commenced in June. Improvement set in almost immediately. In three or four days the tumours were discharging less, and seemed to be a little smaller. On account of the extent of surface involved the treatment was somewhat prolonged, but in the following October, four months after commencing treatment, the patient returned to her home in the North of Scotland, all the lesions in the condition shown by the second photograph (*Plate XXIV*). This second photograph, which was not taken by the same gentleman as the first, conveys rather an erroneous impression of the general condition of the patient, which was perfectly satisfactory, while she had considerably increased in weight.

REFERENCE.—[1]See *Brit. Jour. Derm.* Jan. 1903.

MYOPIA. *E. H. Holthouse, M.B., F.R.C.S.*

Discussing *pernicious myopia*, Priestley Smith[1] denies that this condition can be sharply distinguished from that of innocent myopia, there being innumerable grades, variations, and combinations between the two types, so that there is no place for a dividing line. In trying to predict the course which any case may take, the following factors should be considered :—

(1,) *Age.*—Other things being equal, the younger the patient the more likely is the myopia to increase in degree; but age alone justifies no inference.

(2,) *Degree of the myopia.*—Other things being equal, the higher the myopia the more likely is it to increase. High myopia in a child is of very evil augury. In adults no forecast can be made even from the grade of the defect and the age taken together, unless account be taken also of the state of the choroid and retina.

(3,) *Condition of the choroid and retina.*—The average vision of myopes sinks as the degree of the myopia rises. The higher degrees are to be feared less for the error of refraction than for the loss of vision due to choroidal and retinal changes, for which there is no remedy. These changes vary in gravity with the grade of the myopia, but bear no fixed proportion to it. With equal grades of myopia they are more extensive in the older persons than in the younger. The usual order of their occurrence is, first the typical myopic crescent, then the more diffuse thinning of the choroid in the adjacent region, then pigmentary and hæmorrhagic changes in the retina at or near the macula, and in some cases detachment of the retina.

(4,) *Constitutional condition.*—It is clear that constitutional disease may be a factor in any case of myopia. It may account for the abnormal yielding of the sclera; it certainly often aggravates the morbid changes in the choroid and retina.

(5,) *Heredity.*—It has been suggested that inherited myopia is commonly an innocent disorder, while the non-hereditary forms are usually pernicious. It would be difficult to prove this, but heredity certainly gives no immunity from pernicious complications.

(6,) *Occupation.*—The future of many myopic eyes depends on the way in which they are used. Prolonged and excessive close work does harm, and such work, if persisted in, tends to make myopia assume a pernicious character. The amount of risk must be estimated from the grade of the myopia, the age of the patient, and the amount of choroidal change already present.

In **Operation for High Myopia** by extraction of the lens, Voigt[2] prefers immediate evacuation of the clear lens matter through a linear incision, to the performance of a preliminary needling with subsequent removal of the opaque material. The advantages claimed are: (1) Avoidance of multiplicity of operations;

(2) A lessening of the risk of glaucomatous symptoms; (3) Shortening of the duration of treatment; (4) Less frequent loss of vitreous. He suggests operation in all cases with myopia of more than 15 D, and thinks it may be safely performed up to forty or forty-five years of age. He approves of both eyes being dealt with in suitable cases, so that binocular vision may be established. He does not consider that the operation predisposes to the occurrence of retinal detachment. In the series of cases from which he draws his conclusions the visual results were very satisfactory, the majority of the patients being nearly emmetropic after operation.

P. Dolbean[3] also prefers immediate extraction to discission. He urges great caution both in the selection of cases and in the performance of the operation. He does not recommend it before twelve years of age, nor after forty, nor when there is good vision in one eye.

References.—[1]*Ophth. Rev.* Dec. 1901; [2]*Ibid*, Sept. 1902 [3]*New York Med. Jour.* Aug. 18, 1900.

MYOSPASMS. *Graeme M. Hammond, M.D., New York.*

Walton[1] read a paper at the American Neurological Association in which he pointed out the confusion that exists in the classification of the various anomalies of the neuro-muscular mechanism which give rise to involuntary spasmodic movements. After a comparative study of these various forms of myospasm he deduces a classification which is at once thorough and comprehensive. His conclusions are as follows:—

(1,) The term *myoclonia*, as a collective designation for the unrelated disorders, should be discontinued.

(2,) The term *myokemia* should be limited to cases showing, without hereditary or congenital history, widespread muscular quivering, without atrophy or other indications of progressive degeneration of the nervous system, without constitutional symptoms, and without sign of present infectious or other acute disease. Cases should not be excluded, however, on account of preceding or introductory symptoms pointing to disease of the lower neurons, if such disease has either disappeared or come to a standstill.

(3,) The term *myoclonus fibrillaris multiplex* should not be applied to such cases, since it suggests a relationship between myokemia and the paramyoclonus multiplex of Friedrich, with which it has nothing in common.

(4,) *Myoclonus multiplex* (the prefix para seems superfluous)

should be used to designate bilateral clonic spasms involving whole muscles or groups of muscles, generally those attached partly or entirely to the trunk.

(5,) The term *myotonia acquisita* should be limited to non-hereditary and non-congenital cases in which otherwise healthy individuals present the typical motor disorder or the typical reactions of Thomson's disease. This term should not include the rigidity accompanying marked intestinal disorder or pronounced psychopathic states, even though the rigidity in the latter conditions may be increased by voluntary movement.

(6,) The tendency to spasm on attempted voluntary movements, unless accompanied by the typical motor disorder, or the typical reactions of Thomson's disease, should be classed as *intention spasm*.

(7,) The term *myospasm*, clonic or tonic, may be used instead of myoclonia and myotonia, when it is desirable to include under one head the various forms of involuntary muscular contraction without known organic basis.

REFERENCE.—[1] *Jour. Nerv. and Ment. Dis.* July, 1902.

NEPHRITIS. *Prof. Robert Saundby, M.D., M.Sc., LL.D., F.R.C.P.*

Cominelli[1] recommends in the treatment of chronic uræmia the hypodermic injection of 5 or 6 grains of **Sodium Salicylate.** Lemoine[2] advocates the use of **Ether,** either by hypodermic injections or by the mouth, injecting ½ drachm under the skin and giving a teaspoonful by the mouth alternately every hour. The injection must be made deeply into the tissues ; it is painful, but this is of no importance where coma is present. When the patient becomes conscious the treatment may be kept up by giving a teaspoonful by the mouth every hour or half hour.

Glynn[3] has recorded the successful employment of the old method of **Blood-letting,** in a case of uræmic coma where diaphoretics and purgatives failed. Two pints of blood were removed, and one pint of saline solution was injected into the connective tissues of the axilla, and shortly afterwards half a pint into the rectum. The convulsions ceased and consciousness returned, and the patient ultimately recovered sufficiently to leave the hospital apparently quite well. The large quantity of blood removed is noteworthy ; it is possible that the partial discredit into which blood-letting for uræmia has fallen may be due to want of boldness in abstracting a sufficient quantity of blood.

Surgical Intervention in Nephritis.—A discussion upon this important subject took place in the beginning of 1902 in the Berlin Society for Internal Medicine, in the course of which J. Israel[4] claimed that during the previous ten years he had seen cases presenting symptoms very like those of nephritic colic due to stone, but where stone was absent, cured by operation. He attributed the good effects of incision to the relief of tension in the kidney, but he did not pretend that the knife should be the remedy for all cases of nephritis, and denied that he had ever proposed surgical interference for Bright's disease. Klemperer, in criticising Israel's attitude, said that he seemed to call cases of operable renal disease, nephritis, and those that are not, Bright's disease ; he did not see how he distinguished between them. He thought operation only justifiable in cases of anuria due to mechanical causes, or in the presence of intense pain or dangerous hæmorrhage. Caspar reported two cases which simulated renal colic, and were cured by simple nephrotomy ; but Zondek pointed out how difficult it is to exclude with certainty the existence of a small renal stone, even after the kidney has been exposed and incised. Senator allowed that Israel did not propose to operate in Bright's disease, but said that other surgeons following in his footsteps had gone further than he had proposed. He thought the only justification for the operation was anuria, and that it should not be undertaken for either hæmorrhage or colic.

Cramer[5] has drawn attention to the occurrence of what he calls emulsion-albuminuria in uræmia. He has only observed it during coma, and he thinks that if the urine were examined more often in this condition it would be found more frequently. When this form of albumin is present the urine is milky, and on boiling does not become solid, but deposits an abundant sediment which is composed of numerous small globules, proved by chemical examination to be albuminous. He thinks that the presence of this emulsion-albuminuria points to a fatal prognosis.

References.—[1]*Gaz. deg. Osped. e del Clin.* 1900 ; [2]*Therap. Gaz.* Aug. 15, 1900 ; [3]*Brit. Med. Jour.* Jan. 26, 1901 ; [4]*La Sem. Méd.* Feb. 5, 1902 ; [5]*Münch. Med. Woch.* Jan. 21, 1902.

NEPHRITIS, CHRONIC (Surgical Treatment of).

E. Hurry Fenwick, F.R.C.S.

The operative treatment of chronic nephritis is on its trial. It is obviously a subject of the highest importance, and the statements concerning the cure of a disease hitherto considered

incurable by surgical intervention, demand the most careful consideration and the fullest and most searching enquiry. It will be remembered that some years ago, Harrison (1896), Edebohls (1899), Ferguson (1899), Israel (1899), and Pousson (1899), recorded observations which seemed to show that marked improvement in the albuminuria followed upon chance operations upon kidneys the subject of chronic Bright's disease. In these cases the kidney was either incised, or its capsule was split. Since 1899 a large amount of material bearing on the point has been recorded, and it will be of value to consider it now in detail.

As Edebohls,[1] who claims to be the innovator, has operated upon 40 patients suffering from chronic Bright's disease (23 women, 1 child, 16 men—6 of the latter being medical men), and says: "He has yet to see the first evil effect attributable to the method he has adopted (decapsulation), and that even the danger apprehended by some of subsequent compression of the kidney substance as a result of peripheral cicatricial contraction has not been realised," it will be as well to examine his method and results somewhat minutely. His method, that of decapsulation of the kidney, is performed as follows:—

"The patient is placed prone upon the table, with the author's kidney air-cushion underlying and supporting the abdomen. Both kidneys are thus rendered accessible to operation without the necessity of changing the patient's position. An incision is carried from the twelfth rib to the crest of the ilium along the outer margin of the erector spinæ, without opening the sheath of that muscle. The fibres of the latissimus dorsi are bluntly separated in the direction of their course, without cutting. The ilio-hypogastric nerve is sought for and drawn to one side or other out of the way of harm. Division of the transversalis fascia exposes the peri-renal fat. This is divided over the convexity of the kidney until the capsule proper is reached. If possible, the kidney is next delivered into the wound or out upon the skin of the back, a procedure which greatly facilitates further operative measures in both renal decapsulation and nephrotomy. When such delivery of the kidney is impossible, the rest of the work must be done at a great disadvantage, with the kidney well up underneath the lower ribs, and with the fatty capsule constantly overlapping the organ to a greater or less extent.

"The operator next proceeds to bluntly separate the fatty capsule from the capsule proper, the dissection being continued on either aspect and around both poles of the kidney until the

renal pelvis is reached. Now and then, the fatty capsule may be found so thickened and adherent, as the result of chronic peri-nephritis, that the scissors or knife may be required to separate it from the capsule proper. The kidney with its capsule proper is next lifted from its fatty capsule bed, and if possible delivered into or through the wound. The capsule proper is divided on a director along the entire length of the convex external border of the kidney, and clean around the extremity of either pole. Each half of the capsule proper is in turn stripped from the kidney and reflected towards the pelvis until the entire surface of the kidney lies raw and denuded before the operator. In separating the capsule proper from the kidney care must be taken not to break or tear away parts of the kidney substance, which is often very friable and very firmly connected with the capsule proper, especially in the presence of chronic interstitial nephritis. Edebohls has found the smooth surface of the index finger of the rubber-gloved hand the best instrument for safely effecting separation of the capsule proper from the kidney. The stripped-off capsule proper is next cut away entirely, close to its junction with the pelvis of the kidney, and removed.

"Delivery of the kidney into the bottom of or out of the wound greatly facilitates the decapsulation part of the operation, whereas if the kidney cannot be readily reached the operation sometimes becomes very difficult. In the latter event the entire capsule proper may have to be peeled off at finger's length in the bottom of the wound beyond the reach of sight. The capsule proper should invariably be peeled off in its entirety from the surface of the kidney, and excised *in toto* if possible. When total excision is found impossible, any remaining portions of the capsule proper are simply reflected backwards around the root of the kidney, where they will curl up and stay. The kidney is dropped back into its fatty bed, and the external incision is closed. Drainage, save under exceptional conditions, is dispensed with." [The editor considers that drainage is safer, for there is always much leakage the first twenty-four hours.]

Both kidneys should always be operated upon at one sitting. The grave danger in operating for chronic Bright's disease, says Edebohls, lies in the anæsthetic rather than in the operation itself, and a patient should not be twice exposed to this danger. Decapsulation of both kidneys for chronic Bright's disease requires for its performance from half an hour to one hour, counting from the first incision to complete closure of both

wounds and the application of dressings. It is advisable to keep the patient in bed, preferably upon the back, for two or three weeks after operation, according to circumstances. Decapsulation of one kidney is, in itself, a less serious operation than either nephropexy, nephrotomy, resection of the kidney, or nephrectomy.

Illustrative cases.—Case 14. Mrs. L. K. Advanced right and left diffuse nephritis ; bilateral nephropexy. Mother of patient died at forty, and her only sister at twenty-seven, both of chronic Bright's disease. Her father and a younger brother are ill of same disease ; patient herself has been under treatment for Bright's disease for over a year. Decided improvement in urinalysis, after operation. Thus the albumin was one third of what it was before operation ; casts were less numerous ; patient improving.

Case 17. Mrs. S., æt. thirty-three. Albuminuria in 1896 and persistent. In September, 1901, her condition was as follows : urine 27 oz. per diem ; sp. g. 1020, 50 to 70 per cent of albumin and abundant casts. Dropsy of lower extremities, a little ascites, some swelling of face. Pulse 100 ; temp. 99-101. Quantity of urine gradually diminished to 10-12 oz. in twenty-four hours. Legs and abdomen tapped preparatory to operation. Condition before the operation : face pallid and puffed ; system water-logged ; unable to breathe lying down ; pulse 120 ; temp. 100 ; respiration 30. Œdema of entire lower lobes of both lungs. Bilateral decapsulation performed with difficulty because of great œdema of parietes. Both kidneys, chronic parenchymatous nephritis (large white kidney). Subsequent condition critical for a few days ; temp. 103·8 ; pulse 132 ; respiration 42. Daily amount of urine varied from 2-15 oz. per diem. After the eleventh day the urine increased until 55 oz. was reached at the 36th day. Date of last report. Dec. 1, 1901. General dropsy and pulmonary œdema had gradually and entirely disappeared ; there was a slight tendency to reaccumulation in the abdomen. She can sleep horizontally without discomfort ; is well.

The following statements are made :

(1,) *The true capsule of the kidney shuts off a vascular supply from the fatty capsule to the gland.*—The fibrous capsule of the kidney forms an almost impenetrable barrier to the passage of blood-vessels between the kidney and its fatty capsule. It is not at all uncommon, for instance, in operating upon a kidney to find the blood-vessels of the fatty capsule greatly increased

in size, and now and then a large artery may be seen *entering* the capsule proper. But on raising the capsule proper that vessel does not seem to have entered the kidney, but to have expended itself on the capsule.

(2,) *Decapsulation removes an insuperable barrier to an active secondary circulation.*—In the course of three operations upon kidneys that had previously been operated upon by nephropexy, one by Edebohls and two by other surgeons, the following conditions were noted as the results of the first operation.

(*a*) The formation of strong connective tissue adhesions or bands attaching the kidney to its surroundings.

(*b*) The existence in these connective tissue adhesions or bands of very large and numerous blood-vessels running between the kidney and the adjacent tissues.

(*c*) The predominance in number and size of the newly-formed arteries over the newly-formed veins.

(*d*) The significant fact that in all the arteries the direction of the blood stream was toward the kidney. Hence the dictum, "Take away all true capsule, and the kidney will be fed through the cortex."

How does the operation act in bringing about a cure or improvement of chronic Bright's disease?—The beneficial results of the decapsulation of kidneys affected by chronic Bright's disease are considered by Edebohls to be due to arterial hyperæmization of the kidney. This leads to the gradual absorption of the interstitial or intertubular inflammatory products and exudates, thus freeing the tubules and glomeruli from external compression, constriction, and distortion, and permitting the re-establishment in them of a normal circulation.

Is the cure rapid?—No, it must be distinctly realised that *the cure is progressive.* The cure of chronic Bright's disease is only initiated by operation, and it is thereafter only gradual and progressive. The final and permanent disappearance of albumin and casts from the urine requires from one to twelve months after the operation.

Interesting points.—Parenchymatous nephritis and interstitial nephritis form the two basic pathological entities upon which all agree. But one variety is never present without some admixture, greater or less, of the other. Chronic Bright's disease was found to be unilateral in one-half, or nearly one-half of the cases operated on—probably this was because the patients were taken in an early stage. Ether did not appear to have

any untoward result, the nitrous oxide and oxygen combined is preferable. There was no mortality.

"A surgeon," says Edebohls, "unfamiliar with kidney operation, and consequently either slow or too hesitant and timid, is not the right man in the right place in operating for chronic Bright's disease"; to which estimate the collator of this article ventures to add the following: A rough-handed, drag-away-something surgeon, or one unfamiliar with or careless about strict asepsis, had better turn his attention to other parts of surgery than the decapsulation of kidneys affected by nephritis.

It is interesting to note the change in Edebohls' opinions as to the ease of bringing the kidney on to the loin. In his first article he had only dealt with females, and kidney work in females is easy. After he had dealt with the male, in which sex kidney operations may be the most difficult and fatal in the whole range of surgery, he remarks twice upon the difficulty of decapsulating the organ when out of sight.

REFERENCE.—[1]*Brit. Med. Jour.* Nov. 8, 1902.

NERVES (Suture of). *Priestley Leech, M.D., F.R.C.S.*

Bowlby[1] in two lectures on the suture of nerves, lays stress on the following practical points. In primary suture use an absorbable ligature which goes right through the nerve; he thinks the best suture is split kangaroo tendon. Silk is not absorbed, and the tendon suture is strong, will last a long time, and ultimately becomes absorbed. Keep the part at rest and warm. After sufficient rest begin slight use of the part, with massage and galvanism. In secondary suture, to find the nerve it is best to seek it above or below the scar, and trace it up to the scar. Do not cut off the bulb on the upper end, for it is composed of young nerve fibres; the tip, which merges into scar tissue, should alone be cut off. As regards the lower end which is shrunken and degenerated, only cut off the scar tissue. The chief cause of failure in both secondary and primary suture is sepsis. In secondary suture another frequent cause of failure is the length of time which has elapsed since the original injury, for changes have occurred in the muscles and motor fibres, and possibly in the spinal cord, so that no success as regards motion may result. If an operation has been delayed more than two years after the primary injury there is likely to be failure, but even where operation is finally successful it is probably nine months or more before motion is restored, and

it may be a year or two, and it is better to tell the patient he will have to wait a considerable time for cure. It is much more difficult to obtain good results in a median or ulnar nerve than with a divided musculo-spiral, and a hand after division of a median or ulnar is never so good as it formerly was, and in a pianist or violinist the hand will probably never again be as useful either for touch, sensation, or motion.

In cases where the freshened ends of the divided nerve can not be brought into contact, a piece of a large nerve (say the sciatic) of a sheep or dog or some other animal has been interposed with success.

Complete paralysis may follow a mere contusion of the nerve, and may last for some time, even a year.

In cases of partial division of a nerve it is better to wait before operation, as repair occurs in most cases.

REFERENCE.—[1]*Lancet*, July 19, and 26, 1902.

NEURALGIA (Trigeminal).

Graeme M. Hammond, M.D., New York.

Allard[1] relates the history of the successful treatment of this disease with strong **Continuous Electrical Currents** applied daily for from twenty to thirty-two days. His conclusions are as follows :—

(1,) The electrical treatment of trigeminal neuralgia is a curative one which may be relied upon, not only in recent and benign cases, but also in grave cases of long standing, if a current of sufficient intensity is employed for a sufficient length of time.

(2,) The current should be the constant galvanic. Its intensity should be at least 40 m.a., and may be increased according to the case to 50, 60, or 70 m.a. or even more, and should be applied for from thirty to sixty minutes.

(3,) The necessary intensity should be used from the first day of treatment if possible, and the applications should continue regularly for the following ten, twenty, or thirty days, according to circumstances, even when notable amelioration occurs at the beginning of the treatment.

(4,) The facial electrode should be at least 150 square centimetres in area, flexible, and well moistened. It should be applied over the entire distribution of the trigeminus, from the top of the forehead to the lower jaw, even if the neuralgia is confined to only one branch of the nerve. The indifferent electrode, likewise well moistened, should be at least 200 square centimetres in

area for a current of 40 m.a., and of from 300 to 400 square centimetres area for stronger currents.

(5,) The treatment is absolutely harmless if care is taken to very gradually increase the current at the beginning, and as gradually decrease it at the end of the application, which necessitates the use of a good rheostat, for any sudden variation of the current, although not dangerous, might produce intense vertigo or syncope.

(6,) Even the strong currents will be well born if at the beginning the current strength to be used throughout the administration is exceeded by 5 or 6 m.a.

(7,) The active electrode should be the positive ; but in case of non-success with this pole after a certain number of applications, one should not hesitate to employ the negative pole, especially if trophic disturbances are present.

(8,) The action of the current is probably due to the electrolytic effects produced in the trunk, roots, and peripheral terminations of the nerve.

Arullam,[2] holding the opinion that the disease is a sensory homologue of epilepsy, determined to employ in it Flechsig's **Opium Treatment** for the latter disease. He modified the method of administration in that he gave somewhat smaller doses than Flechsig recommends. He gave pills containing $\frac{1}{3}$ grain to $\frac{1}{2}$ grain of extract of opium, and rapidly increased the daily quantity until a maximum daily dosage of 10 grains was reached—only two-thirds of Flechsig's maximum quantity. He reports five cases, all of long standing—from one up to thirteen years—two of them having undergone operations. Four of the five cases were cured, and had remained so for periods varying from eighteen months to three years. The fifth case had had a relapse, and was cured by an operation. It is necessary that the patient should be kept in bed, restricted to a milk diet, and deprived of alcohol.

REFERENCES.—[1]*Arch. d'Elect. Med.* March, 1902, No. 111 ; *Jour. Nerv. and Ment. Dis.* July, 1902 ; [2]*Gaz. Med. de Torin*, Sept, 1901 ; *Brit. Med. Jour.* Dec. 28, 1901.

NEURALGIA, Trigeminal (Surgical Treatment of).

Robert Abbe, A.B., M.D., New York.
W. Scott Schley, A.B., M.D., New York.

Lexer and Türk,[1] in one of the most elaborate articles that have appeared upon the **Gasserian Ganglion Operation** for the relief of trigeminal neuralgia, have tabulated all the recorded

cases. They believe that sufficient time has now elapsed to judge accurately of its value, and find that it has constantly grown in favour. They consider that the ganglion itself must be removed to effect a permanent cure. From all sources 201 cases were collected. Of these 167 (83 per cent) survived the interference ; in 9 the operation failed of the desired success ; in 3 it could not be completed ; 156 can be regarded as permanently cured (77·6 per cent). In all 33 (17 per cent) died during or shortly after the operation (those deaths occurring after a longer interval, but to which the operation may have contributed, are included in the mortality statistics). Of these 11 died in collapse without regaining consciousness, 7 of meningitis (of these 2 from wounds of Eustachian tube with the trephine, and 1 from an unclean instrument), and 1 from an infection from without, where the patient tore off bandage in delirium ; 2 died of brain tumour (the cause of the neuralgia, but not removed at operation), 1 of brain abscess, 1 (after eight days) from softening in the temporal lobe, 1 from retractor pressure, 2 cases about three weeks later of pneumonia, 1 from heart failure six weeks later, 1 from hæmorrhage, 1 of uræmia without meningitis. Three cases died without report of cause of death ; in two, brownish softening of temporal lobe was found at death. In the cases of death from these various causes temporal lobe injuries were found additionally in many.

Recently there has been an attempt to find a less severe operation than that of ganglion extirpation. Abbe's method, **Division** of the second and third branches, with the interposition of a piece of sterilized rubber tissue, and the method now again reported by Spiller and Frazier,[2] and previously done by Horsley, of section of the sensory root of the trigeminus, have been proposed. Much less time is consumed in the performance of the operation, and there is less shock. Spiller performed some careful experiments upon dogs to determine the possibility of nerve regeneration after root section. He found no attempt at regeneration, but concludes that these cases do not disprove the possibility of such a regeneration. Even regeneration, however, may not mean return of pain. Frazier sums up as follows : The advantages of this operation are that : (1) It should be attended with a lower mortality ; (2) It obviates a number of difficulties ; (3) Its execution is, comparatively speaking, simple ; (4) It is practically complete when the posterior aspect of the ganglion and its sensory root have been exposed ;

that is, it is practically complete before the most serious and troublesome difficulties common to other operations have been encountered ; (5) The integrity of the cavernous sinus is never in danger ; (6) The risk of injuring the sixth nerve is avoided. A successful case is reported. It is necessary to keep the patient under observation for a considerable period of time to prove the value of this procedure.

Rose[3] reports the removal of the Gasserian ganglion by a modification of Doyen's method. Hutchinson[4] prefers the temporal method of approach rather than those in which the skull is opened from below, that is, in the zygomatic fossa. He believes it sufficient to remove the portions of the ganglion connected with the superior and inferior maxillary divisions of the nerve, and to leave the ophthalmic division unharmed. He reports six cases without fatality. Experience has shown that the operation should not be too long delayed.

REFERENCES.—[1]*Arch. f. klin. Chir.* vol. lxv, 1902 ; [2]*Phil. Med. Jour.* Dec. 14, 1902 ; [3]*Pract.* May, 1902 ; [4]*Polycl.* April, 1902.

NEURASTHENIA. *Graeme M. Hammond, M.D., New York.*

Assuming the dependence of neurasthenia upon intestinal auto-intoxication, Starr[1] recommends careful selection of food to suit individual peculiarities, combined with the administration of antiseptic drugs in shellac-coated capsules so as to restrict their effect to the intestine. He advises in general, cream, soups, fish, meat, macaroni, and such farinaceous foods as rice or hominy ; milk, eggs, meat soups, cheese, potatoes, beets and tomatoes, alcohol and tea being avoided ; coffee is generally permissible, and the free drinking of water is beneficial.

The drugs employed are **Calomel** and **Podophyllum** in fractional doses at intervals of a few days, and such antiseptics as **Sodium Sulphocarbolate** (grs. 5) with **Potassium Permanganate** (gr. 1) in a shellac-covered capsule about two hours after meals and on retiring ; or **Salol** (grs. 5) with **Castor Oil** (ℳ10) ; or **Sodium Benzoate** (grs. 2), **Zinc Sulphocarbolate** (gr. 1), and β-naphthol (gr. 1), similarly protected. He also recommends moderate exercise, congenial occupation, and regular morning bathing in hot water followed by cool sponging.

REFERENCES.—[1]*Med. Rec.* vol. lix, No. 19 ; *Treatment,* Oct. 1901.

NEURITIS. *Graeme M. Hammond, M.D., New York.*

At a meeting of the American Electro-therapeutic Association,[1] in the discussion on neuritis, Morse said the treatment depended

upon the cause and the stage of the disease. Most writers objected to the use of **Electricity** in the acute stage, but with care and gentleness, and the use of very mild galvanic currents and a very large stationary electrode, gratifying results could be obtained. In cases of long standing, when the pathological condition was one of interstitial fibrous development, the object should be to improve the nutrition of the parts. The faradic brush and coarse coil with slow interruptions, and the interrupted galvanic current would benefit many cases, when the high tension current would be of no avail. In old and debilitated subjects the séance should be repeated at short intervals. In the use of galvanism on an inflamed nerve great care should be taken to avoid shock.

Morton advised that, no matter how acute and painful the neuritis may be, **Statical Sparks** should be directly applied to the painful area for ten or twenty minutes daily. He regards this mode of treating neuritis as surely a specific as the use of quinine in malaria. While he had treated many cases recently with the wave-current, his preference was still for the long, clear spark, reserving the wave-current for those who would not submit to the severer treatment. The average period of treatment was from four to six weeks.

REFERENCE.—[1]*Med. Rec.* Nov. 2, 1901.

NOSE (Diseases of). *W. Milligan, M.D.*

Cerebro-Spinal Rhinorrhœa. — Watson Williams and E. G. Stocker[1] record a case occurring in a woman aged forty. No definite cause could be ascertained. The fluid dropped almost continuously from the right nasal passage, and was perfectly clear and like water. It contained no sediment, did not stiffen a handkerchief soaked in it, reduced Fehling's solution, was alkaline with a slightly saline taste, and had a specific gravity of 1004.

Pseudo-Hæmoptysis of Naso-Pharyngeal Origin.—Botey[2] calls attention to the recurrence of naso-pharyngeal hæmorrhage. Bleeding from the vault is favoured by the close attachment of the mucosa to the parts beneath. The course of the hæmorrhage can be determined by first cleansing the pharyngeal wall with a cotton carrier, and then applying a fresh carrier behind the soft palate. In all cases of hæmoptysis of doubtful origin, the naso-pharyngeal mucosa should be treated in this way, and examined by means of the post-nasal mirror.

Deviations of Septum Nasi.—Among the many operations which have been suggested for the rectification of septal deformities that of E. J. Moure[3] (Bordeaux), has found considerable favour amongst rhinologists. The method adopted is briefly as follows : Where deviation of the septum exists, associated with a septal spur or thickening of the fibro-cartilage, the thickened portion or spur is first of all removed by means of a special ring-knife (*Fig.* 54), and hæmorrhage is checked by searing the raw

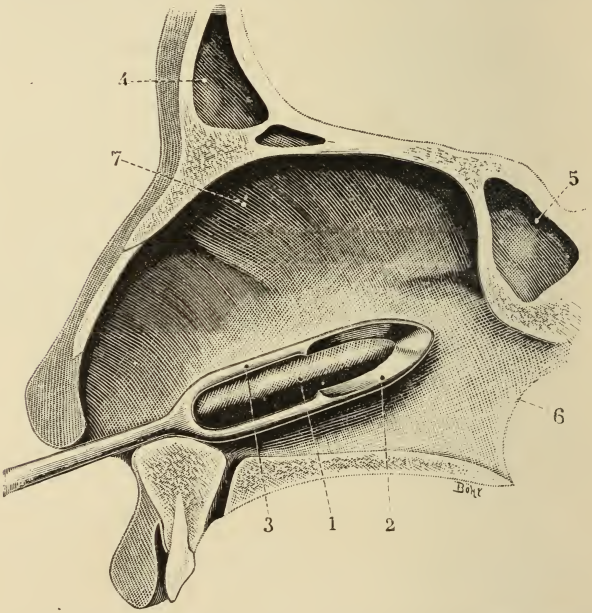


Fig. 54.—Ring Knife Removing Spur. 1, Spur ; 2, Cutting Portion of Knife ; 3, Ring of Ditto.

surface with a galvano-cautery knife. When complete healing has taken place, the deviation is treated. A pair of specially constructed scissors (*Fig.* 55) is introduced as far back into the nasal passage as possible, parallel to the nasal floor, and an incision 2 to 3 centimetres long is made through the fibro-cartilage. With the same pair of scissors another incision is made parallel to the nasal bridge and along its whole length, thus making an acute angle with the first incision. In this way a moveable segment of the septum is formed, held in front by the anterior

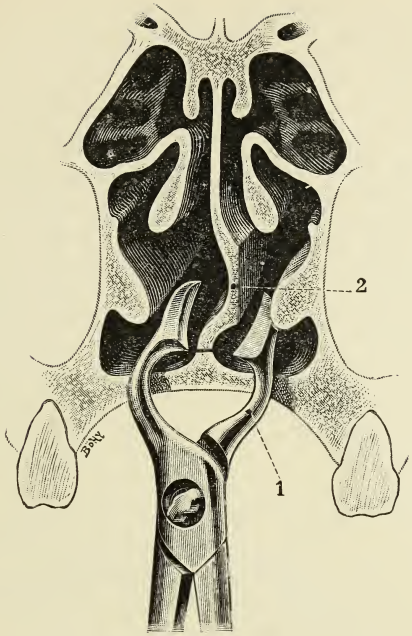


Fig. 55.—Scissors for Cutting Septum. 1, Blades; 2, Portion of Septum from which Spur was removed.

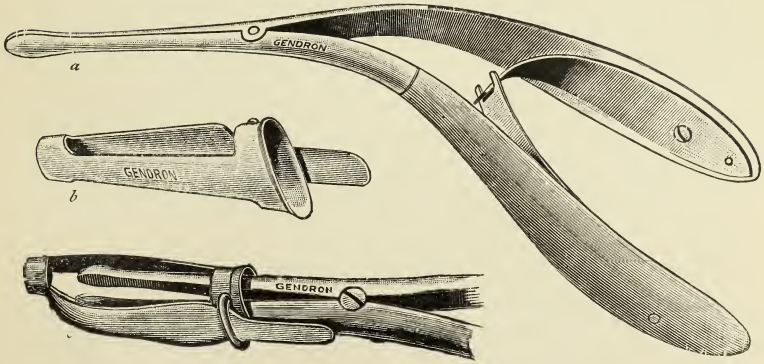


Fig. 56.—Splint and Dilator. *a*, Dilator; *b*, Splint; *c*, Dilator in Splint.

part of the base of the septum, and behind by the perpendicular plate of the sphenoid and the vomer. A special splint (*Fig.* 56, *b*), consisting of two parallel blades, the outer blade fixed and rigid, the inner longer and made of soft metal, is now introduced into the obstructed nostril, the soft or inner blade being placed against the deviation, which is now gently moulded into proper position by means of a dilator (*Fig.* 56, *a*, *c*). This splint is left *in situ* for seven or eight days. Pain following the operation is relieved by frequent bathing of the nasal passages with warm boracic lotion. Crusts, etc., are removed by washing or swabbing.

In discussing Moure's operation, Hemington Pegler[4] remarks that in some cases a preliminary anterior turbinotomy is found of value. He prefers instead of Moure's special dilator, the splint of rubber material introduced by R. Lake, and recommends that it be worn *in situ* for three weeks. He also prefers his own form of shears, made more after the pattern of Asch's straight scissors, with smaller blades, spring handles, and no intervening angles (*Fig.* 57).

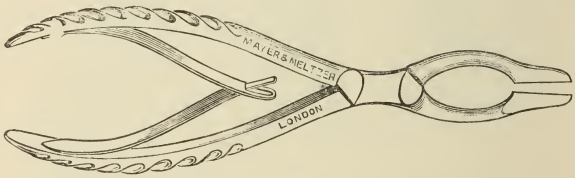


Fig. 57.—F. H. Pegler's Scissors for Moure's Operation.

Dundas Grant[5] suggests a method of straightening and fixing the septal cartilage by means of transfixion with a strong pin or needle. The needle is introduced into the nostril, and passed through the septum on the concave side anterior to the concavity. Having passed through to the other side it is then used as a lever to press the convex part into the concave side, and is then passed back through the septum so as to keep it *in situ*. The various steps may be summarised as follows : (1) Cocainising both sides of the septum. (2) Straightening and transfixing with a needle. (3) Administering nitrous oxide gas. (4) Cutting through the cartilage by means of Moure's shears horizontally below the deflection, then obliquely in front of it and above it parallel to the ridge of the nose, the incisions not meeting below and in front. (5) Manipulating the cartilage at the incisions so as to encourage over-riding.

Collapse of Ala Nasi.—W. J. Walsham[6] recommends in the treatment of this most troublesome condition the following ingenious operation: "A strip of mucous membrane as thick as possible, and about $\frac{3}{16}$ of an inch in width, is dissected up from the inner wall of the vestibule, leaving the base attached above. The surface of the little pit at the angle of bending of the lower lateral cartilage is next made raw by removing the epithelial layer. The epithelial lining is also removed from this strip of tissue; the tissue itself is rolled up bandage-wise, and is then secured to the rawed surface of the pit by a stitch of the finest fishing gut passed by a needle through the septum into the opposite nostril and back again. The little roll of tissue when thus fixed presses out the external portion of the lateral cartilage, and prevents the ala from falling during inspiration into contact with the septum."

Nasal Hydrorrhœa.—In the treatment of this affection Lermoyez[7] advises the internal administration of **Atropine** and **Strychnine.** He uses the following combination:—

℞ Sulphate of atropine mgrms. 5 | Syrup of orange peel grms. 400
Sulphate of strychnine mgrms. 5 |

One "cuillerée à soupe" of this mixture is taken at breakfast for ten days; for the next ten days two doses are taken. Then follows a fortnight's rest, and then a twenty days' course again.

Nasal Tuberculosis.—Knowles Renshaw[8] regards the existence of nasal tuberculosis as of more frequent occurrence than is usually supposed. His conclusions are: (1) Primary nasal tuberculosis does occur in man, and not so infrequently as is usually supposed. (2) The simple introduction of the bacilli into the nostril of a susceptible animal without any abrasion may cause tuberculous infection. (3) Infections having occurred the disease tends to run a slow course. (4) Probably the further from the entrance of the nostril the seat of the lesion, the more rapid the course of the disease, and the earlier the invasion of other organs. (5) The system is as a rule invaded by means of the lymphatics, though very occasionally by other routes.

General Therapeutics.—W. H. Bates[9] states that in about sixty seconds after the application of **Suprarenal Extract** to the nasal mucosa the parts become quite blanched. He considers: (1) That suprarenal extract is a powerful astringent without objectionable properties. (2) That the solution should be freshly prepared, and should not be mixed with other sub-

stances. (3) That in the treatment of diseases of the nose and throat it should be used in combination with other remedies.

Subcutaneous Injections of Paraffin for Nasal Deformity.—To Gersuny, of Vienna, belongs the main credit of advocating the employment of subcutaneous injections ot paraffin in cases of nasal deformity either of traumatic or of morbid origin. The comparative simplicity of the method and the encouraging results which have been obtained mark a distinct advance in the treatment of such cases. That the operation is however not entirely free from risk is conceded by all observers. Inefficient antiseptic precautions, and the injection of paraffin at too high a temperature, with consequent spreading into the subcutaneous tissues of the forehead, upper eyelids, etc., have been responsible for a number of failures. A case of pulmonary embolism following an

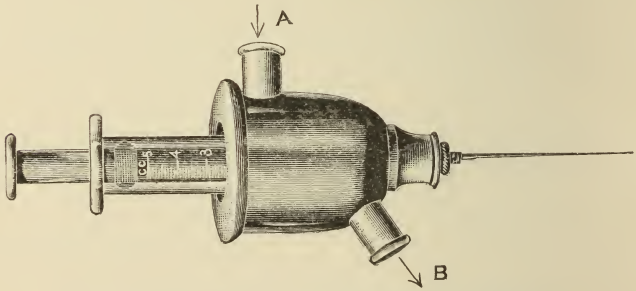


Fig. 58.—Quinlan's Syringe. A, B, Inflow and Exit of Hot Water.

injection is recorded. That the method is however valuable, and capable of many and diverse applications, is undoubted.

Paraffins of varying melting points have been used. Gersuny formerly employed a paraffin with a melting point of 104° F. Choussaud uses a similar paraffin, whilst Eckstein employs one with a melting point of 140° F. The main objection to the employment of paraffins with melting points at from 104° F to 110° F is the difficulty of keeping the solution sufficiently fluid, so as to flow easily through the needle used.

Quinlan[10] employs an ordinary glass antitoxin syringe with a needle of large calibre. The syringe (*Fig.* 58) is enclosed within a metallic hood through which water at a temperature of from 118° F to 125° F is made to flow during the whole time the injection is being made. Great care should be taken to render the operation area aseptic, and also not to inject too

PLATE XXV.

PARAFFIN INJECTIONS FOR NASAL DEFORMITY.

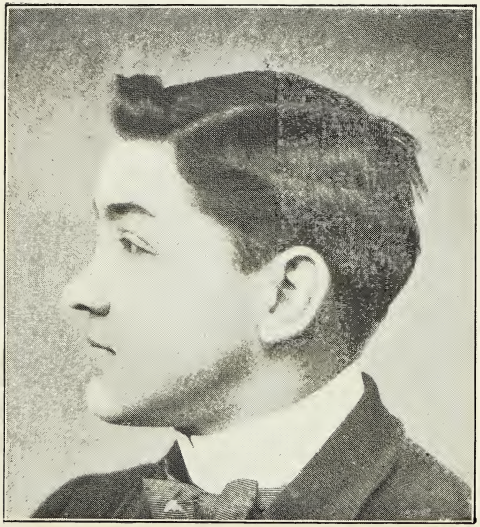


Fig. A.—Before Operation.

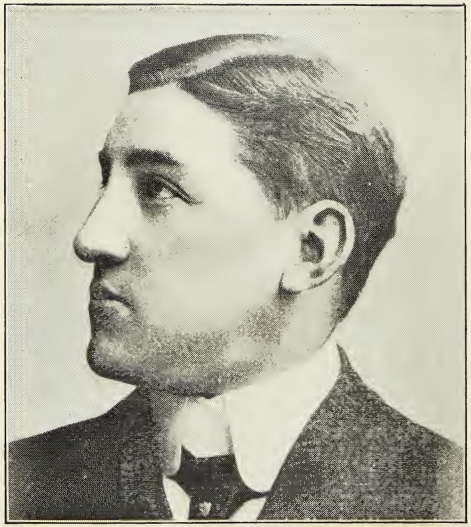


Fig. B.—After Operation.

much paraffin at one time, it being advisable rather to repeat the injections than to over-distend the subcutaneous tissues. The injection is made in the middle line of the nose, and the fluid paraffin is carefully moulded into proper position by an assistant. Some surgeons prefer to make a small incision in the middle line of the nose, and to form a small subcutaneous pocket into which the paraffin is injected.

In order to prevent the paraffin from cooling too rapidly, Walker Downie[11] recommends keeping the needle warm by means of an electric current. The syringe is an ordinary 10 c.c. glass serum syringe. The proximal half of the needle, including its collar, is bound round with cotton thread for the purposes of insulation. A piece of fine platinum wire is wound round the needle and its collar, and to each end a fine copper wire is attached. These two wires are connected with the terminals of a storage battery furnished with a rheostat, so that the platinum wire surrounding the needle may be heated as desired.

A. J. Martineau[12] records the case of a patient upon whose nose he operated with success, about half a drachm of paraffin with a melting point of 110° F. being injected. *Plate XXV, (Figs. A, B)* shows the appearance of the patient before and after the operation. Broeckaert[13], Scanes Spicer, Stephen Paget[14], Hal Foster[15], Milligan[16], and many others, have published cases emphasising the value of this method of treatment.

A. E. Comstock[17] has made some interesting experimental observations in order to ascertain the fate of the injected paraffin. In all cases he found that a certain amount of shrinkage took place, due probably to the small amount of oil which all paraffins contain, becoming absorbed. Fibroblasts gradually penetrate the mass of paraffin, a mesh-work of connective tissue develops within and around it, until finally the whole mass is encapsuled within a fibrous-tissue bed.

(See also "Adenoids," "Coryza," "Epistaxis," "Ozæna," "Rhinitis.")

References.—[1]*Brit. Med. Jour.* Oct. 12, 1901; [2]*Ann. des mal. de l'Oreille*, Jan. 1901; [3]*Jour. of Laryng.* April, 1901; [4]*Brit. Med. Jour.* Aug. 30, 1902; [5]*Ibid*; [6]*Lancet*, Mar. 20, 1900; [7]*Jour. of Laryng.* Aug. 1900; [8]*Jour. of Path. and Bacter.* F. 1901; [9]*Laryng.* Feb. 1900; [10]*Laryng.* Aug. 1902; [11]*Brit. Med. Jour.* May 3, 1902; [12]*Lancet*, Aug. 9, 1902; [13]*Rev. Hebdom. de Laryng.* Dec. 7, 1902; [14]*Brit. Med. Jour.* Sept. 13, 1902; [15]*Med. Rec.* Oct. 11, 1902; [16]*Brit. Med. Jour.*; [17]*Med. Rec* Nov. 1, 1902.

ŒSOPHAGUS. *Priestley Leech, M.D., F.R.C.S.*

Idiopathic dilatation.—Swain[1] gives an account of this rare condition. It is one of the causes of dysphagia, but must be differentiated from the large sized diverticula which may occur both in the lower and upper third of the œsophagus. The causes of the dilatation, which is generally spindle-shaped, are unknown; in the case Swain describes a fall downstairs may have had some influence in causing it. The symptoms are dysphagia, pains in the chest, especially after meals, and often relieved by vomiting; in addition to these the patient would often wake up suddenly in the night with cough and choking sensations of a distressing character, and culminating in vomiting

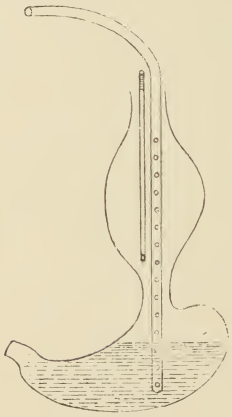


Fig. 59.

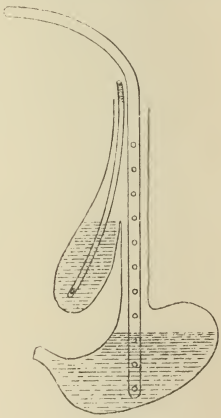


Fig. 60.

undigested food mixed with frothy matter. The other conditions which might give rise to difficulty in diagnosis would be malignant disease, and diverticulum of the œsophagus.

As regards diagnosis from diverticula, a valuable means is that suggested by Rumpel: A tube with numerous perforations in its lower third is passed down the œsophagus into the stomach, and another tube with a single perforation near the end is passed into the œsophagus above the cardia, resting in the pouch or dilatation. If a measured quantity of water be poured by means of a funnel into the œsophageal tube it will flow through the perforated tube into the stomach if a dilatation exists, so that the fluid can be recovered from the stomach, but not from the dila-

tation (*Fig.* 59). On the other hand if a diverticulum exists, this will be filled first by the water, and only the overflow will enter the stomach, so that part of the fluid can be recovered from the stomach and part from the diverticulum (*Fig.* 60). The latter portion of fluid can be measured, and will give some idea of the capacity of the pouch. Another means is the "coffee experiment" suggested by Max Einhorn, and is as follows: The patient drinks a cupful of black coffee one hour before the examination, and is instructed to try and force the coffee down by taking deep inspirations and compressing his thorax, thus mechanically forcing the fluid from his œsophagus into the stomach. An hour later the patient drinks a glassful of water. The tube is now inserted into the œsophagus, the water appears quite clear, and is regained in almost the same amount as swallowed by the patient. The tube is then pushed a little further into the stomach, and now some coffee will appear without the admixture of the water. Besides the difference in colour, the coffee which has come from the stomach will show the characteristics of gastric juice, presence of hydrochloric acids and ferments. The X-rays, gastro-diaphany, and œsophagoscopy have all been used as means of diagnosis. The administration of subnitrate of bismuth may help to render the broadening of the œsophagus more evident when using the X-rays. In the case quoted a bullet-shaped piece of metal when swallowed was found to occupy *different* positions—on either side of the spinal column—at different times. The diagnosis of œsophageal dilatation in this case was formed on the following grounds: (*a*) The ease with which the tube could be passed into the stomach; (*b*) That in order to empty the second cavity it was merely necessary to withdraw the tube some inches from the stomach; (*c*) The positive result obtained by the "two tube test" and "coffee experiment"; (*d*) The absence of the swallowing sound. Malignant disease was excluded by the duration of the disease and absence of stricture, for malignant disease would not give rise to dilatation of the œsophagus unless stricture were present. Diverticulum of the œsophagus was excluded by the tests already mentioned, by the ease with which the tube could be passed into the stomach, by the absence of swallowing sound, and by the fact that the œsophagus could be emptied by merely withdrawing the tube some distance from the stomach without pushing it on again into a definite pouch.

Treatment has not proved very satisfactory. Feeding with

the stomach tube has failed after repeated trials; electricity (one rheophore being placed in the œsophagus) and tonics have given no relief. A comparative degree of comfort only has been obtained by the ingestion of soft foods, and the systematic lavage of the dilated œsophagus. Gastrostomy was considered, but was thought to be undesirable so long as the patient is keeping up her nutrition.

Malignant Stricture.—Symonds[2] has an instructive paper on this condition. Many cases are treated for dyspepsia; in most a gradually increasing dysphagia is the common history. In by no means a small number the onset is sudden; *e.g.*, at a particular meal a man choked over a mouthful of meat, and from that moment had difficulty in swallowing. Other early signs are loathing for food, and pain when food passed the centre of the œsophagus. Some patients are found losing flesh because the diet has been restricted on the view that the disease was gastric. It must be remembered that so-called dyspepsia, *e.g.*, loss of appetite, "tightness at the chest," water-brash, some pain and distension, with irregular bowels, may be the result of œsophageal obstruction. A diagnosis can generally be made by the patient swallowing a liquid; this, if marked, is characteristic; the patient makes one ordinary effort followed by one or two smaller ones, and these are accompanied by certain peculiar movements of the neck; he then brings up a little gas, often hits his chest and says it has gone. Kussmaul's sign—*viz.*, listening at the back to hear the fluid arrested at the stricture and then trickling through—is valuable when the observer does not pass a bougie. Except in advanced cases and with fine bougies, the dangers of passing a bougie have been exaggerated. In impermeable cricoid stricture there is danger of passing the bougie into the trachea, and a patient may bear the pressure of a bougie in the trachea for some time without coughing. In case of doubt we must pass the bougie not more than 12 inches, and examine with a laryngoscope.

Malignant disease of the œsophagus occurs in three situations: (1) At the upper third and cricoid orifice; (2) the lower end and gastric orifice; and (3) the central region.

(1,) *In the upper third.*—Stricture at the cricoid or beginning just below the ring is always malignant. It begins at from eight and a half to nine inches from the teeth, and usually involves two or three inches. Its chief peculiarity is its tendency to

cicatrise and contract, and to the naked eye a specimen may be indistinguishable from a chronic syphilitic or other ulcer; the contraction is irregular. The diagnosis may be confused by four conditions :—

(*a*,) Dysphagia occurring in elderly people, with even a streak of blood on the bougie; cause possibly excessive cricoid ossification, or some bony outgrowth interfering with movement.

(*b*,) The nervous form of dysphagia, especially when occurring in men, and particularly medical men. The difficulty in swallowing may come on quite suddenly at a meal. The diagnosis is difficult. If malignant disease be present he thinks the patient almost always permits the passage of a bougie, and there is some irregularity of the surface indicating disease of some standing.

(*c*,) Presence of a pharyngeal pouch.

(*d*,) Malignant disease of the lower end of the pharynx involving the arytenoids. The main distinctions are the pain accompanying dysphagia; the voice early has the peculiar sound produced by the presence of œdematous arytenoids, and the growth can usually be seen. These cases are more frequent in women, and at nearer thirty than forty years of age.

(2,) *The lower end*, *i.e.*, a point from 15½ to 17 inches from the teeth, is in Symond's experience the only locality where a simple obstruction is found. The use of a coudé bougie at the lower end is recommended where a straight one will not pass. In estimating the extent of the disease, the steel bulb is very useful. The infiltration of the stomach by malignant disease, where the stomach can only hold a couple of ounces, may be confounded with disease of the lower end of the œsophagus.

(3,) *The middle third*.—A sarcoma and a myoma may occur and may give rise to obstruction. Aneurysm and mediastinal growths rarely give rise to serious dysphagia. Œsophageal pouches occurring in the middle and lower sections are difficult to detect.

Treatment.—(1) Insertion of a **Tube**; (2) **Gastrostomy.** The general question of treatment he puts as follows : If the patient can swallow fluids and semi-solids, and while a bougie can be passed and plenty of nourishment taken, he may be left alone so long as he can swallow well, or a bougie, No. 12 catheter size, can be passed. If the dysphagia increases a tube must be passed or gastrostomy be performed. If a bougie cannot be passed, or goes with difficulty, gastrostomy. If patient cannot

swallow and a bougie cannot be passed, then immediate mechanical treatment is required.

The passage of a bougie to dilate the stricture is injurious; the passage of a small bougie is simply to secure the route so that at any time a tube can be passed for feeding purposes or the time fixed for gastrostomy. In all cases it is advantageous to attempt to pass a bougie after a night's rest and a dose of opium. In the upper third we have the long feeding-tube and gastrostomy. A short tube does not last comfortably; of long tubes the best is that made of rubber drainage tubing introduced by the whalebone director. If this cannot be passed the retention of a silk-web tube for a few days will enlarge the passage sufficiently for the drainage tube. If the patient is tolerant the method is a useful one; the tube will last a long time, as long as nine months; if the tube is soft and has lost its elasticity, when rejected a fresh piece must be used. It should never be removed for cleaning, as re-insertion may be difficult.

In disease involving the lower end and cardiac orifice, **Early Gastrostomy** is the best treatment. In disease of the central portion, the **Short Tube** is serviceable in a fair number of cases, and when it acts well is superior to any other method. It must be replaced by a long feeding-tube when pulmonary symptoms arise. The use of chloroform to facilitate the introduction of a tube is a question for discussion; in cricoid strictures it has been of great service, but personally Symonds has always examined with the laryngoscope to see where the tube is, as in some cases it has been introduced into the trachea, and milk poured in with disastrous effects. In any case, where a tube is worn the insertion of a new tube must immediately follow the removal of the old one, or it may be impossible to re-insert another tube.

REFERENCES.—[1]*Brit. Med. Jour.* Nov. 16, 1901; [2]*Lancet*, Aug. 9, 1902.

OIL INJECTIONS. *Priestley Leech, M.D., F.R.C.S.*

Oils have been injected as vehicles for suspended insoluble medicaments for some time. As long ago as 1889 it became apparent that pulmonary embolism might result almost immediately from injections of liquid oils, and this accident has been often taken for pleurisy. It has also followed the injection of vaseline alone, and the embolism is probably due to the entrance of non-solidified oil into a vein. Corning[1] first used this method of injecting oil for various purposes. In the *Zeitschrift f.*

Heilkünde for 1900 Gersuny stated that melted vaseline, when injected into a yielding tissue, forms a small tumour which remains *in situ*, causing no appreciable reaction. He has used it for raising depressed scars following bone operations, relieving deformity incident to castration, and blemishes due to cavities, and has also caused artificial narrowing of orifices by this means. Pfannenstiel[2] says his attempts were unsuccessful, and oil embolism resulted, the distinctive symptoms being cough, chill, headache, vomiting, and accelerated respiration, followed twenty-four hours later by dyspnœa and cyanosis ; the illness lasted about a week. (See pp. 148, 490).

Moskovicz[3] gives a full account of the procedure. The more recent uses of vaseline injections have been to obliterate small-pox marks, raise saddle-back noses, and to prevent re-union of nerves after neurectomy. It has also been used successfully in the treatment of varices, producing a perivascular support which has prevented further dilatation. It must be remembered that embolism may result. Hercyl[4] closed a vesico-vaginal fistula in ten sittings, and a case of prolapse of the rectum was perfectly cured. The paraffin should have a melting point of about 40° C. (it can be obtained ready sterilized from the shops), and should be injected into the subcutaneous tissue, care being taken that it is not injected into muscle nor into a vein. In time the paraffin becomes absorbed, but not before connective tissue has grown and formed round it, and thus the result becomes permanent.

References.—[1]*New York Med. Jour.* Dec. 26, 1891 ; *Ibid.* April 14, 1894 ; *Med. Rec.* Dec. 5, 1896 and Feb. 1, 1902 ; [2]*Cent. f. Gyn.* No. 48, 1900 ; [3]*Wien. Med. Woch.* June 20, 1901 ; [4]*Med. Press and Circ.* Dec. 18, 1901.

OVARIES (Diseases of). *Arthur E. Giles, M.D., B.Sc., F.R.C.S.*

Sclerocystic Ovaritis.—Fraikin[1] sums up the symptoms and physical signs of this condition as follows :—

(1,) *Functional symptoms :* Menstrual troubles are always present, and menorrhagia, with irregular bleeding, is especially frequent. There is usually some leucorrhœa, due to accompanying metritis. Menstruation is generally painful. This pain is felt usually in the ovarian area, and may radiate into the lumbar region, down the legs, and even to the coccyx and perinæum. At first pain is only felt just before and during menstruation, but later it may become constant. This pain must be distinguished from the colicky spasm of salpingitis, and

painful uterine contractions due to the expulsion of clots from the uterus. Dyspareunia is often present, and at times painful defæcation is met with.

(2,) *Physical signs :* The bimanual examination reveals a sensitive zone in the iliac region, with rigidity of the recti on pressure. The ovary is felt somewhat enlarged, and may be prolapsed or adherent. Anæsthesia is often necessary to make a thorough investigation. There is usually some disturbance of the general health, especially digestive troubles, palpitation and nervous symptoms, often of a neurasthenic type. In some cases hysteria may be present, complicating the diagnosis.

Ovarian Tumours.—It is known that ovarian tumours may arise in childhood, but cases are rare. Of interest, therefore, is Hülk's report[2] of an abdominal section on a girl, aged 3, suffering from hypogastric pain and swelling for several weeks. An ovarian tumour was discovered on the right side ; it was as big as a man's fist, and weighed a quarter of a pound. It was removed ; the opposite ovary was healthy. Recovery was rapid. The growth consisted of a serous and a dermoid cyst combined. The remains of the ovary formed a small prominence on the under-surface of the tumour. He adds that dermoid elements are usual in ovarian tumours before pregnancy.

Fibroma of the ovary.—Fairbairn[3] reports 5 cases. He concluded that these tumours must be regarded as pure fibromata, and not either fibro-myomata or fibro-sarcomata. He called attention to the importance of the tunica albuginea in forming a strong defined capsule for these growths. Fibromata of the ovary were divided into three classes for purposes of description : (1) The ovary was entirely replaced by the new formation. This occurred in small as well as large growths, and therefore did not depend on the size to which the growth had attained. (2) A local growth of the stroma leaving part of the ovary unaffected, except by compression. The growth tended to remain within the capsule of the ovary. (3) Pedunculated fibromata like subperitoneal fibroids of the uterus. These might either have originated in the stroma and later been extruded, or they might be growths of the tunica albuginea.

Bland-Sutton, in discussing Fairbairn's paper, said that the leading features of these tumours could be summarized thus : Encapsulation, ovoid shape, intense hardness, and the whorled disposition of the tissue as displayed on the cut surface. These were a group of signs presented by no other tumour of the ovary,

and their clinical value was equal to their simplicity. There was an important feature by which ovarian fibroids were distinguished from similar tumours in the uterus. It was well established that uterine fibroids did not arise after the menopause, whereas ovarian fibroids occurred in the aged, and on two occasions he had successfully removed them at the ages of sixty-four and sixty-six years, and the clinical histories indicated that the tumours had only been noticed two years before removal. The extreme hardness of these tumours was a valuable clinical sign.

Ovariotomy.—Kynoch,[4] in a paper on repeated ovariotomy, asks, What is to be done with the apparently healthy ovary in cases of operation for unilateral cystic disease? The exact clinical significance of papillomatous growths was a disputed question, but the researches of Pfannenstiel had shown that papillomatous growths might be associated with perfectly simple ovarian cysts, causing implantation and metastasis on the peritoneum with ascites, and yet the condition might be permanently cured in many cases on the removal of the tumour. On the other hand, he found that one half of the cystic carcinomata of the ovary were papillary in nature, and gave rise to true metastasis in the glands, the liver, and other organs. It was, therefore, in the case of papillary cysts that the removal, partial or complete, of the other ovary was of most importance, because it was difficult or impossible during the course of an operation to say with any degree of certainty whether they were dealing with a simple or malignant papillomatous tumour. The operator should inform the patient before operation that the other ovary might at the same time have to be removed. This was especially necessary during the child-bearing period. In women at or about the climacteric it would probably be a safe rule to remove the unaffected ovary in every case. In younger patients they had to consider the relative advantages of leaving the ovary, of partially excising it, or of removing it altogether. By leaving the ovary the absence of the distressing symptoms of an artificial menopause and the possibility of a subsequent pregnancy, must be contrasted with the slight risk which the patient ran of a repeated ovariotomy.

Conservative Surgery of the Ovaries.—Burrage,[5] from a study of the after-history of 85 cases, comes to the following conclusions :—

It is advisable to do conservative operations in all cases where

the ovaries and tubes are not hopelessly diseased in all parts of their structure, except on patients who are near the menopause, on patients who have pronounced gonorrhœa of long standing, and on the rare cases of malignant disease.

When a patient is near the menopause (over thirty-five years of age), and has ovarian or tubal disease of any considerable degree of severity, it is generally wiser to perform complete removal with or without hysterectomy, according as the uterus also is diseased or not.

In cases of well-marked gonorrhœa of long standing, especially if the patient is constantly exposed to reinfection, if both tubes are seriously diseased and closed, total removal with or without hysterectomy is the operation of choice.

In certain cases of this class, where the patient thoroughly understands the likelihood that another operation may be necessary at some future time, and wishes to take the chances in the hope of preserving the function of menstruation, conservative operation is permissible.

If one tube is patent and healthy in appearance, and there is healthy ovarian tissue to preserve, a conservative operation ought to be performed even in the presence of gonorrhœa.

With the present method of performing resection of the tubes, if both tubes are found closed at the time of operation, subsequent pregnancy is not to be expected.

In severe grades of inflammation of the appendages, irrespective of causation, if the ostium abdominale of one tube is patent, the prospect of subsequent pregnancy after the preservation of a portion of ovary is about $23\frac{1}{2}$ per cent. In the less severe grades of inflammation under similar conditions of tube and ovary, the prospect of subsequent pregnancy is about 44 per cent. In women who have borne children, in both classes, subsequent pregnancy may be expected in 35 per cent, whereas in previously sterile women it may be looked for in only 5 per cent.

Experiments on the *administration of ovarian preparations* after double ovariotomy have been made by Flockemann[6] in 28 cases. In 6 the climacteric symptoms entirely disappeared as the result of the administration of these preparations. In 4 the symptoms were markedly benefited. In 9 the condition was slightly ameliorated. In 9 no favourable result was obtained. The usual method was to give one or two tablets three times daily for periods of one or two weeks. These results show, according to Flockemann, that the administration of ovarian

preparations in this condition is followed by uncertain results, but that in the majority of cases some benefit is obtained, a conclusion which warrants their exhibition in all such cases. They never produce unfavourable symptoms.

Ovarian Tumours and Pregnancy.—A valuable paper on "Ovarian Tumours and Ovariotomy during and after Pregnancy" is contributed by Doran.[7] He quotes the statistics of Orgler,[8] who has collected 148 cases of ovariotomy during pregnancy reported between 1889 and the beginning of 1901, excluding all reports which are valueless or even likely to mislead on account of important omissions. The conclusions deserve brief notice. Only 6 mothers were lost (a mortality of 4 per cent), but in only 4 was the fatal result clearly caused by the operation, as in one case death was due to criminal abortion during convalescence from the ovariotomy, and in one the patient survived the operation three months, and the cause of death was not reported. The four remaining deaths make the mortality only 2·7 per cent. Subtracting the two mothers lost not directly through the operation, pregnancy was interrupted in 36 out of 146 cases (24·7 per cent), "interruption" including not only abortion and premature labours, but also the four maternal deaths from operation. Thus in 110 cases pregnancy was uninterrupted; 49 were specified as having been delivered at term, and some of the remaining cases were lost sight of before delivery. Amongst the 36 interrupted pregnancies, besides the four deaths, was 1 case of criminal abortion not fatal to the mother, 2 of the induction of premature labour by obstetricians, and 1 of vesicular mole pregnancy. Thus, 32 cases remain where untimely conclusion of the pregnancy was due purely to the operation (22·5 per cent). In 30 cases the ovariotomy was double; in 24 of this group pregnancy was not interrupted, and the remaining 6 included one case where the mother died. In all the 148 cases, excepting 7, the ovariotomy was abdominal. The minority was made up of vaginal operations; in 2 of them the pregnancy was interrupted, in 2 it was specified as proceeding to term, and in the remaining 3 it was simply recorded as continuing after convalescence. Orgler shows that when ovariotomy is postponed till after labour, abortion occurs in 17 per cent of well-observed cases. Doran refers to recent cases of Hellier, Spencer, Lowenberg, Puech, Munro Kerr, and Haultain, and reports 2 cases of ovariotomy during pregnancy, and 15 of ovariotomy following pregnancy, that occurred in his own practice. Among the

latter the proportion of complications, obstetrical and operative, was very high. In no fewer than 11 out of the 15 cases the pedicle was twisted, and in 6 out of the 11 the tumour was a dermoid. Doran concludes that the most recent records only confirm the prevalent teaching, that an ovarian tumour detected during pregnancy should be removed, that its removal may be the best course during labour, and that a tumour of this kind is liable to undergo in the puerperium prejudicial changes which indefinitely increase the dangers of operation.

REFERENCES.—[1]*Ann. de Gyn.* April, 1900; *Med. Chron.* June, 1900; [2]*Monats. f. Geb. u. Gyn.* March, 1900; [3]*Obst. Trans.* for 1902; [4]*Lancet*, June 21, 1902; [5]*Ann. of Gyn. and Ped.* May, 1900; [6]*Münch. Med. Woch.* Nov. 26, 1901; [7]*Lancet*, Feb. 8, 1902; [8]*Arch. f. Gyn.* vol. lxv, p. 126, 1901.

OZÆNA. *W. Milligan, M.D.*

Stein believes ozæna to be infectious. Two organisms were found by him, the bacillus mucosus, and a bacillus resembling that of diphtheria. In 51 cases bacteriologically examined, the bacillus mucosus was found in 44.

R. Lake[1] has tried the effect of **Injecting Liquid Paraffin** into the atrophied turbinals in cases of ozæna. He claims that the artificial cushions thus built up are a source of comfort to the patient, in enabling a better clearing of the nasal passages during the act of blowing the nose.

Brindel[2] also employs injections of paraffin to reconstruct the atrophied turbinal bodies in cases of atrophic rhinitis. Two to three c.cm. of fluid paraffin are injected under the mucosa of the inferior turbinated bodies. The author claims that the mechanical pad thus produced enables the patient to clear his nose effectively, and also that the dry and decomposing crusts become fewer in number and less tenacious and solid.

Bronner[3] uses solutions of **Formalin**, 1-1000 or 1-2000 in severe cases of atrophic rhinitis, after a preliminary cleansing with an alkaline douche.

Yonge[4] records his experiences of the value of **Cupric Electrolysis** in the treatment of ozæna. After preliminary cleansing and cocainising of the nasal mucosa, the copper needle attached to the positive pole is passed into the inferior or middle turbinated body, and the steel needle into the septum. A current of 3 to 10 milliamperes is used, and the sittings last about ten minutes. The results were in general satisfactory.

Stuart Low[5] advocates the use of **Mucin** in such cases. A

soloid composed of 5 grs. of mucin, 5 grs. of sod. bicarb, and 1 gr. of menthol is dissolved in 1 oz. of sterilised warm water, or in equal parts of sterilised warm water and sterilised lime water. The solution is sprayed into the nose by means of a coarse nasal spray. The crusts cease to accumulate and the accompanying fœtor disappears.

Prof. de Francesco[6] relates the case of a female patient, the subject of very severe ozæna, who contracted an attack of **Erysipelas,** the point of entry of the streptococcus to the general circulation apparently having been through the already existing nasal lesion. The effect of the attack was to cure the ozæna. The author regards ozæna as an infectious disease, caused by Lœwenberg's coccus, an organism which is able to resist attacks of strong antiseptics, but succumbs under the influence of the bacillus erisypelatosus.

Bommier[7] recommends, in the first instance, douching the nasal passages with some antiseptic solution, the antiseptic being changed from time to time. Following this cleansing the nose should be sprayed with the following :—

℞	Acid Phenic	2 grms.	Glycerin	50 grms.
	Resorcin	3 grms.	Aquæ	300 grms.

And finally a bean-sized mass of the following should be introduced into each nostril, the patient's head being held back :—

℞	Menthol	0·20 cgm.	White Vaseline	30 grms.
	Boric Acid	2 grms.	Essence of Geranium	20 drops

REFERENCES.—[1]*Laryng.* May, 1902 ; [2]*Rev. Hebdom. de Laryn.* June 21, 1902 ; [3]*Laryng.* Jan. 1900 ; [4]*Lancet,* Nov. 9, 1901 ; [5]*Ibid,* April 5, 1902 ; [6]*Treatment,* Feb. 1902 ; [7]*Med. Rec.* March 31, 1900.

PANCREAS (Surgery of).

Walter G. Spencer, M.S., M.B., F.R.C.S.

Much interest has of late been taken in pancreatic surgery. The pathology of acute hæmorrhagic pancreatitis has been connected with biliary obstruction, bile being thought to regurgitate up the pancreatic duct when prevented from escaping into the duodenum. This seems to be confirmed by the results of injecting bile into the pancreatic duct of dogs. It is important to note that many of the cases of acute hæmorrhagic pancreatitis are aseptic, and result in a pancreatic cyst. Other cases result in gangrene and peritonitis, but the results of immediate operation have proved so hopeless that an expectant treatment should be the rule. Doubtless some cases will be subjected to exploration

because it is impossible to diagnose their condition from gastric perforation, but hæmorrhagic pancreatitis being found, the operation should be at once terminated, after plugging with iodoform gauze, or the patient will die of shock.

Chronic pancreatitis is more common than was formerly suspected, owing to the induration of the head of the pancreas being mistaken for cancer, from which it can only be distinguished by its slow clinical course. In such a case cholecystenterostomy may be very efficacious.

Cancer of the head of the pancreas on the other hand runs a rapid course. Cholecystenterostomy does not much prolong life; indeed when the diagnosis is certain the operation is not worth doing.

Pancreatic cysts are probably of various origin. Some appear to be obstruction cysts, with or without the formation of a calculus in the ducts. Others certainly result from hæmorrhagic pancreatitis. Drainage is the common treatment, sometimes combined with a counter opening behind. But whenever it can be done the cysts should be emptied and dissected out, then the abdominal wall closed.

Wounds of the pancreas are apt to cause gangrene or fat necrosis, similar to acute hæmorrhagic pancreatitis, but a suture has been applied with success to the rupture of pancreatic wound.

Pancreatic calculus is described by Moynihan.[1] Pancreatic calculi consist of alkaline and earthy carbonates and phosphates, the result of obstruction, with more or less chronic inflammatory changes in the gland. The symptoms may resemble those of gall-stone colic, glycosuria and fatty stools also accompanying the disorder in somewhat less than half the cases, with wasting. Jaundice is the exception, occurring when the calculus also obstructs the common bile duct. After an attack fragments of stone may be found in the motion. The possibility of diagnosis beforehand seems very doubtful. In the cases operated upon by Gould there was a pancreatic calculus in the end of the duct, but also gall-stones with suppurative cholecystitis, and a hydatid cyst in the liver. In a case under Ord the symptoms during life were mainly of biliary obstruction. In Moynihan's cases there was the history of a prolonged wasting ulcer, with peculiar bronzing of the skin, and attacks of epigastric colic. Jaundice supervened later, the stools occasionally frothy or greasy, and under anæsthesia a lump was to be felt above the umbilicus. A diagnosis of chronic pancreatitis was made, and

a calculus removed from the pancreatic duct through the duodenum by slitting up the bile papilla. The stone consisted mainly of carbonate of lime and magnesium, with no phosphates, but some cholesterin and bile pigment.

REFERENCE.—[1]*Lancet*, 1902, ii, 355.

PARALYSIS (Asthenic). *Graeme M. Hammond, M.D., New York.*

Goldflam[1] reports eight cases *in extenso*, and discusses the etiology, pathology, pathogenesis, and treatment. In the only case in which an autopsy was obtained the pathological examination revealed a perfectly normal condition of the central and peripheral nervous system. A lympho-sarcoma was found in the anterior mediastinum, with metastases into the muscular system. Notwithstanding the involvement of the muscular system in this case and that reported by Weigert, he is inclined to regard the causative factor as toxic, and the symptoms as a result of intoxication of the central nervous system. **Thymus** therapy in his cases was not at all successful or satisfactory. In Liefmann's case the histological examination showed practically no changes in the cells of the central nervous system, with the exception of some peculiar homogeneous masses resembling colloid which were found in the peri-vascular spaces of the capillaries, and scattered through the nervous system. The muscles of the tongue showed a considerable infiltration with fat. He believes that the disease may be associated with atrophy of the muscles, and that this atrophy may be due to a peculiar noxious substance that interferes with the function of the central nervous system.

REFERENCES.—[1]*Neurol. Cent.* vol. xxi, No. 11, June 1, 1902; *Jour. Nerv. and Ment. Dis.* Nov. 1902; [2]*Deut. Zeit. f. Nerv.* Bd. xxi, Hft. 3-4 ;1902; *Jour. Nerv. and Ment. Dis.* Sept. 1902.

PARALYSIS (Facial). *Robert Abbe, A.B., M.D., New York.*
W. Scott Schley, A.B., M.D., New York.

Bréavoine[1] discusses **Spino-Facial Anastomosis** for facial paralysis, caused by division or destruction of the facial nerve in its intra-petrosal portion, by middle-ear intervention, fractures, or gunshot wounds Experimentally with animals (dogs) it was found to invariably cure. In two cases in which it had been done, one was very successful; the other was undertaken at too late a period, when nerve degeneration had occurred. It is considered indicated in man when the nerve has been destroyed from any of the above causes, but should not be undertaken

unless beyond all other methods of cure. The spinal accessory branch which supplies the trapezius is taken just before it enters the sterno-mastoid muscle, and anastomosed with the facial near its exit from the stylo-mastoid foramen. The operation is considered free from risk, but delicate. Wounding of the internal jugular vein is prevented by care. Paralysis of the trapezius is said to be restricted to some few clavicular fibres.

REFERENCE.—[1]*Travaux de Neur. Chir.* 1902 ; *Brit. Med. Jour.* Nov. 1901.

PARALYSIS (General). *James Shaw, M.D.*

ETIOLOGY.—Dr. Mott,[1] in a discussion at the recent British Medical Association meeting, said that syphilis could be traced in 70 or 80 per cent of general paralytics ; that general paralysis was unknown where syphilis was unknown ; that general paralysis was rare among priests, Quakers, and women of the upper classes, and in the rural districts of Ireland and Sweden ; that recent statistics concurred in assigning the first place among the etiological factors to syphilis ; that the Argyll-Robertson pupil was common to general paralysis and tabes—a para-syphilitic disease ; and that general paralytics were immune to syphilitic inoculation. General paralysis followed both acquired and congenital syphilis, and 20 per cent of the parents of juvenile general paralytics had suffered from general paralysis themselves. But the action of syphilis in producing general paralysis was limited to the brain of civilized man, for syphilis might be, and often was, common among savage races, while general paralysis was not. Those factors which in civilized life favoured the development of neurasthenia, were capable, in co-operation with syphilis, of producing general paralysis. Fifteen years was the average duration between syphilitic infection and the onset of general paralysis. Drs. J. Wiglesworth, Robert Jones, and E. S. Reynolds could not accept the dictum, "No syphilis, no general paralysis." Dr. Oscar Woods said that even in large towns in Ireland, such as Dublin and Belfast, general paralysis was proportionately uncommon. Dr. Judson Bury thought that general paralysis was largely, but not exclusively, due to syphilis. Dr. Lloyd Andriezen believed in predisposition, with syphilis as the main exciting cause ; and alcohol, sexual excess, and over-strain as minor ones capable of producing general paralysis without the help of syphilis. He had seen one case of malarial origin.

Professor Bianchi[2] says the causes of the disease may vary,

but its form and anatomo-pathology always remain the same. It is not a specific disease, but simply a slow death of the nervous elements, that may be induced by numerous causes. Syphilis has no specific action in the causation of the disease, any more than has any other toxic agent, such as alcohol, etc. At one time it was believed that syphilis was the cause, and hopes of cure were raised. In a second period these hopes were damped, and the agents born in the organism owing to the syphilitic poison (para-syphilide of Strümpell) were now considered as the cause. The last period is characterized by some scepticism, there being a vast divergence in the figures given by various authors, from 1·6 per cent by Voisin and 21·6 by Obersteiner to 76·7 by Kowalewsky and 94 by Regis. In 12 cases only of 87 carefully investigated by the author, was syphilis the exclusive cause, although it co-existed with others in many instances. Heredity, alcoholism, etc., were causes in the rest of the cases. Heredity occurred 48 times in connection with other causes, and 17 times as an exclusive cause ; 26 patients were alcoholic. Renal disease is a frequent cause. Bianchi mentions as a point of interest that almost all prostitutes are syphilitic, yet general paralysis is a rare disease among them. In Naples it is difficult to find prostitutes paretic, yet married women are very frequently so, whether they are syphilitic or not. Idanow found only 83 prostitutes among 565 female general paralytics. According to Westphal, of 148 female general paralytics only one was a prostitute. [It is a question, however, whether many syphilitic prostitutes outlive the incubation period of general paralysis. J. S.] Dr. Graham's report for the Belfast Asylum shows that in December, 1900, of 912 patients resident, only 10—all males—were general paralytics. Of the 379 admissions during the year, 198 were males, and of these 14 were general paralytics. There were no female general paralytics. De Montyel[3] describes a case, confirmed by autopsy, due to malaria, and free from all hereditary taint, degenerative stigmata, intemperance, traumatism, or syphilis.

Diagnosis.—Dr. Brissaud[4] reports a case of cerebral syphilis simulating general paralysis, but which improved under treatment so that the patient was able to discharge his daily duties. General paralysis was excluded by the occurrence of diplopia followed by right internal strabismus and right-sided ptosis, with mydriasis, feeble iris reflex, and impaired accommodation on the same side.

Dr. Marandon de Montyel[5] obtained from 750 observations the following among other results : The light reflexes in general paralysis were more frequently abnormal than normal ; decrease was at least twenty times more frequent than exaggeration, and was progressive ; abolition was rather more frequent than diminution, and increased in frequency with each stage ; the reflexes were always abnormal in traumatic general paralysis, alcoholic coming next in order ; traumatism only was apt to show one pupil altered while the other remained normal ; during the first two stages the alteration was proportionate to the motor disturbances ; decreased tactile—though not algæsic—sensibility coincided with abnormality or abolition of the luminous reflex.

Drs. Cestan and Dupay-Dutemps[6] investigated the Argyll-Robertson pupil question in the Salpêtrière, and failed to find this phenomenon except in cases of general paralysis and tabes. They, however, admit that it is difficult to test the pupils accurately in the insane (*see* "Insanity").

Drs. Toulouse and Vaschide[7] investigated the sense of smell in twenty-eight female general paralytics at Villejuif. Solutions of camphor of various strengths were used, and precautions taken to avoid fallacies. Eight were absolutely anosmic, whereas only one in thirteen sane subjects is so. Defect of the sense of smell increased progressively with the disease, and complete loss did not appear at a very early stage. Perception was lost much sooner than sensation ; the subject, being vaguely conscious of some olfactory sensation when the camphor solution was applied, and being able to distinguish it from water, was often unable to recognize the nature of the odour, even at an early stage of the disease. In ordinary non-paretic insanity the acuteness of the sense of smell is increased. In Toulouse's paretic cases the olfactory region reacted to ammoniacal stimulation—graduated solutions being used—after the true sense of smell was lost, but the sensations decreased as the disease advanced. In most cases, although a painful sensation was produced, the subject could not detect the nature of the stimulus.

Dr. Moravesik[8] mentions among the early symptoms : Digestive disorders, wandering neuralgic pains, diminution in mental activity, a feeling of tightness or beating in the orbits, flashes before the eyes, sounds in the ears, pulsation of the arteries of the neck and temples, sluggishness of ideation, failure of memory, exaggerated emotionalism, pallor, blue rings round eyes, often a rise of temperature at night and an increased

secretion of saliva. He confirms the observation of Mendel (and many others) that the type of general paralysis has altered, returning to the old classical demented form, and that remissions are more frequent. He also thinks that now the initial symptoms are more liable to be confounded with other forms of insanity, especially paranoia, while the later characteristics become more accentuated.

Dr. Chas. S. Fisher,[9] in a discussion at the New York Academy of Medicine, said that vertigo was an early symptom of general paralysis, and coincided with commencing loss of memory. For other early symptoms, see *Medical Annual*, 1900. Dr. Dercum[10] advises, with a view to the early diagnosis of paresis, that cases of chronic fatigue—neurasthenia—should be carefully studied, and signs of mental weakness and deterioration detected when possible. Dr. Ranschburg[11] has tested the memory for words, persons, colours, orientation, names, and numbers in various classes of people. 700 marks being full, schoolboys obtained 360, uneducated persons 327, highly-educated 462, neurasthenics 317, and general paralytics 97. For details of method, see original paper or Dr. Stoddart's abstract.

Dr. Mott[12] says that choline, a product of nerve degeneration, is increased in the blood in general paralysis, beri-beri, etc., and suggests that this might be used as a test where doubt exists between organic and functional disease. He has also[13] found choline in the cerebro-spinal fluid (obtained by lumbar puncture) of patients suffering from general paralysis. Dr. Duflos[14] found lymphocytes in abundance in the cerebro-spinal fluid, obtained by lumbar puncture, in general paralysis, this disease being thus differentiated from the insanities of chronic alcoholism and some forms of senile dementia, both of which at times closely simulate general paralysis as regards symptoms.

Dr. Raecke[15] found in 136 patients tremor of the tongue in 95 cases, immobility of both pupils to light in 54, of one pupil in 10 cases, slow reaction of pupil in 38, and exaggerated knee-jerk in more than half the cases. He found the duration to be two and a quarter years. Sprengler, in 337 cases, found the mean duration to be two and a half years in men and three and eleven-twenty-fourth years in women.

TREATMENT.—Prof. Lemoine, of Lille,[16] has treated six cases of general paralysis with daily hypodermic injections of **Benzoate of Mercury**, 2 c.grms. ($\frac{3}{10}$ grain)—sometimes temporarily increased

to 3 c.grms.—continued for months, with such strikingly beneficial results as to suggest that the question of specific treatment in general paralysis requires reconsideration.

Dr. L. P. Cowen[17] has seen **Chinosol,** in dosage of 2 grains daily, bring about remission in general paralysis too often to be mere coincidence. There has been marked improvement in the pupillary symptoms.

REFERENCES.—[1]*Lancet,* Aug. 23, 1902 ; [2]*Ann. d. Neurol,* see *Jour. Ment. Path.* July, 1902 ; [3]*Rev. d. Méd.* see *Lancet,* March 16, 1901 ; [4]*Prog. Med.* see *Jour. Ment. Path.* March, 1902 ; [5]*Gaz. des Hôp.* see *Jour. Ment. Path.* May, 1902 ; [6]*Gaz. des Hôp.* see *Jour. Ment. Sci.* July, 1902 ; [7]*Rev. d. Psych.* see *Jour. Ment. Sci.* July, 1902 ; [8]*Allg. Zeit. f. Psych.* see *Jour. Ment. Sci.* July, 1902 ; [9]*Med. News,* see *Lancet,* Sept. 6, 1902 ; [10]*Amer. Jour. Insan.* see *Jour. Ment. Path.* June, 1902 ; [11]*Monats. f. Psych. u. Neur.* see *Jour. Ment. Sci.* Jan. 1902 ; [12]*Lancet,* Aug. 2, 1902 ; [13]*Brit. Med. Jour.* July 7, 1900 ; [14]*Ibid, Epit.* March 22, 1902 ; [15]*Arch. f. Psych.* see *Jour. Ment. Sci.* July, 1902 ; [16]*Rev. Neurol.* see *Lancet,* Sept. 6, 1902 ; [17]*Jour. Ment. Sci.* July, 1902.

PERICARDIAL EFFUSION (Surgical Treatment).

Keith Monsarrat, F.R.C.S.E.

The methods of removing effusion from the pericardial sac are two—puncture with aspiration, and pericardiotomy. The indications for removal of effusion are given as follows : (1) When the sac is distended with a large exudate which shows no tendency to absorb ; (2) When there is intense dyspnœa and cardiac embarrassment ; (3) When there is reason to believe that the exudate is purulent. Deguy[1] speaks of a generally bad condition of the patient, with marked oscillations of the temperature, profuse sweating, and rigors, as an urgent indication for paracentesis, preparations being made to undertake pericardiotomy if pus is found.

Puncture has been performed in several different situations. (1) Internal to the internal mammary artery. This artery lies about half an inch from the outer border of the sternum, and if wounded in the fourth or fifth space it would be necessary to resect a portion of the cartilage to ligature it. Puncture must therefore be immediately outside the edge of the sternum and close to the upper edge of the cartilage. The fifth space is usually that chosen. (2) External to the internal mammary artery. This position is not to be recommended, as the pleural sac is necessarily penetrated, and may be contaminated. (3) On the right side, close to the sternal edge ; here again the

pleura will be traversed. It is probable that a good many aspirations as usually performed are made through the pleura, but this should certainly be avoided. Terrier and Reymond say that in all cases in which the effusion is believed to be aseptic the outer operation is to be preferred, but if there is a likelihood of pus being present the puncture should be made close to the left border of the sternum, the pericardium being incised if pus is found. On the other hand, Deguy advises that the puncture should be made below, in the angle between the ensiform and the seventh cartilages. The trocar entered in this situation is pushed upwards and slightly to the left. The sac will be reached at a depth of 2-2·5 cms, varying with the thickness of the abdominal wall. It is often necessary to give the trocar a distinct thrust to make it penetrate the pericardium.

As already stated, when the fluid in the pericardium is purulent the sac must be opened by incision. This incision was at first made through an intercostal space, but most surgeons now practice resection of a costal cartilage. Such an operation is performed as follows: An incision is made exposing the fifth and sixth cartilages; these are divided where they join the sternum, and also 1 to 1½ inches from the sternal edge, and the flap thus formed is turned upwards. The internal mammary artery and the pericardium are thus exposed to view. In some instances the operation has been done in a similar way on the right of the sternum. Deguy[2] advises the following method: (1) An incision of 5 cms. is made down to the bone in the mid-sternal line, commencing a little above the union of the sternum with the xiphisternum; the latter is then resected. (2) A vertical incision is then carefully made through the posterior periosteum and fibrous tissue, and the fibres of the diaphragm are seen. By blunt dissection an entrance is then made for the finger in the middle line, and on passing this upwards the pericardial sac is soon felt. It is caught with a pair of artery forceps, pulled down, and incised. Gauze drainage behind the heart is employed. Deguy thinks this operation preferable to those in which cartilages are resected from the front of the heart, and considers it easy and without danger.

REFERENCES.—[1]*Jour. d. Pract.* 1902, p. 36; [2]*Loco cit.*

PERICARDITIS. (See "Heart.")

PERIODICAL INSANITY. *James Shaw, M.D.*

Etiology.—Dr. Pilcz[1] quotes many distinguished authors (Kraepelin, Morel, etc.), in support of his view that heredity is the most important factor in the causation of the periodic psychoses, traumatism and organic brain disease coming next. The setting in of dementia points to focal lesion.

Diagnosis.—Dr. Pilcz[2] has found that during the maniacal stage of *folie circulaire* the pulse is quicker and has a lower tension, while in the melancholic stage it is slower and has a higher tension, than during the interval of sanity. During either morbid stage he found one of the following bodies in the urine, viz., albumen, albumose, acetone, diacetoacetic acid, indican. In none of the urines tested did he find any of these abnormal constituents during the lucid interval. Not one was characteristic of any particular stage in all cases, but for each case "the abnormal constituent was characteristic for the various stages." In some cases Pilcz was even able to predict the transition from one stage to another of the mental cycle by an analysis of the urine.

References.—[1]*Monats. f. Psych. u. Neur.* see *Jour. Ment. Sci.* Jan. 1902 ; [2]*Period. Geist.* see *Jour. Ment. Sci.* Oct. 1901.

PERITONITIS (Acute). *R. Hutchison, M.D.*

Recent writers[1] are agreed that the treatment of acute peritonitis must be by anatomical and physiological **Rest** to the peritoneum and bowel, and a distinct reaction has set in against the purgative treatment advocated by Lawson Tait. The patient must be confined absolutely to bed, and complete rest and quiet enjoined. The diet must be very spare. For the first two days it may be advisable to withold nourishment altogether, or to feed by the bowel. Many writers object to milk, owing to the irritation produced by its casein. Such liquid foods as **Somatose, Beef Juice,** and a combination of **Egg Albumen** and **Whey** best meet the indications. Some writers advise lavage of the stomach, especially if vomiting is active. Pain is to be relieved by the application of an ice-coil, or by hot fomentations, and by the injection of small doses of **Morphia** ($\frac{1}{16}$ grain) every two to four hours. The addition of a little **Atropine** to the injection is sometimes helpful, but some authors disapprove of it on account of its tendency to lessen the secretions. If **Purgatives** are employed at all, it should only be at the outset of the case ; castor oil or calomel are the best for the purpose. The complete arrest of peristalsis thus obtained is believed to be

beneficial by preventing the spread of infectious material, and favouring the formation of adhesions.

Much the same plan of treatment is suitable in *appendicitis*, against the invariable surgical treatment of which affection, numerous protests have recently been raised.[2] The objection has been urged against **Opium** in such cases, that it is apt to mask the symptoms; but this danger can be avoided by an attentive study of the pulse, fæces, vomiting, degree of meteorism, and passage of wind.

The question *when to operate in appendicitis* is always an anxious one. The latest authoritative pronouncement on this point is by Treves,[3] who has expressed the following opinion :—

(1,) One should *not* operate the moment a diagnosis of appendicitis is made.

(2,) Immediate operation is only indicated in (*a*) fulminating cases, *i.e.*, those in which the constitutional symptoms are unusually severe ; (*b*) perforated cases as soon as there is a reasonable certainty of the presence of pus.

(3,) In other cases it is seldom necessary to discuss operation until about the fifth day, if the constitutional symptoms are still persistent.

(4,) Seeing that the great majority of cases relapse, it is advisable to remove the appendix in the quiescent period after the first attack.

References.—[1]Robinson, *Therap. Gaz.* Dec. 1901 ; Maurange, *Ibid* ; Armstrong, *Montreal Med. Jour.* Feb.1902 ; [2]Bourget, *Therap. Monats.* July, 1901 ; Biedert, *Jahrbuch f. Kinderh.* Nov. 1901 ; Schowinsky, see *New York Med. Jour.* Oct. 19, 1901 ; [3]*Lancet*, June 28, 1902.

PERITONITIS (Tubercular). *Keith Monsarrat, F.R.C.S.E.*

Diagnosis.—The diagnosis of tuberculosis of the peritoneum in many cases presents little difficulty ; but nevertheless a considerable variety of conditions have been erroneously diagnosed as of this nature. Shattuck[1] gives the following list of such : Tuberculosis of the retro-peritoneal glands and pericardium ; fibroma of the ovary ; lympho-sarcoma of mesenteric glands and intestines with perforation and general peritonitis ; scirrhous cancer of the stomach with cancerous peritonitis ; retention cysts with chronic peritonitis ; colloid carcinoma ; adeno-cystoma of the ovary. The present writer has recorded, with Dr. N. P. Marsh,[2] a case of multilocular omental cystoma which closely simulated the local signs of the

condition. The diagnosis may be assisted by the **Tuberculin** test. Shattuck records the result of this in 13 cases; in 8 the reaction was positive, in 3 negative, and in 1 not satisfactory; in 1 reported as negative the temperature was irregular when it was given, and the reaction was considered negative. The preparation used by Shattuck was a 1 per cent solution of Koch's 10 per cent tuberculin, the dose 7 to 10 minims. Reaction consists in a rise of temperature (it may reach 105°), with constitutional disturbance, chilliness, headache, pain in the back, or *malaise*. Kissel[3] lays emphasis on the co-existence of a marked anæmia, which, along with the general wasting, is progressive. He agrees with the general doubt as to the existence of a simple so-called "idiopathic serous peritonitis."

Perhaps the cases in which there is the greatest liability to mistake are those which begin somewhat acutely with fever, digestive disturbances, and colicky pains; in such cases a differentiation from enteric fever will be aided by the agglutination test. These cases are, however, the exception, and for the most part the incidence is insidious with occasional fever, constipation alternating with diarrhœa, steady wasting, and gastric irritability. The local conditions are very variable. The abdomen is always large, and the patient objects to palpation. Perhaps the most common conditions revealed by the latter and percussion are three, either (*a*) free fluid; (*b*) irregular areas of resistance and dulness, collections of fluid and tympanitic coils; or (*c*) one or more hard masses; for instance, the omentum may be rolled up and form a sausage-shaped tumour in the upper part of the abdomen.

Löhlein[4] has written of the aid which may be afforded by rectal examination; the serous lining of the pouch of Douglas can be thoroughly explored from here, and if affected it cannot well be mistaken for other conditions. The exudation in the ascitic form of the disease is of high specific gravity and contains a very large percentage of albumin.

Treatment.—**Cœliotomy** for peritoneal tuberculosis may be said to have originated with König's paper in 1884; since that year it has been performed many hundreds of times. What is the position of surgeons with regard to the proceeding to-day? We have to consider: (1) Cœliotomy in the ascitic form; and (2) In the suppurative or ulcerative type.

(1,) On the first subject there are two opinions held at the present day. On the one hand, it is maintained that serous

tubercular peritonitis is a form of the disease which itself tends towards spontaneous recovery, and that the favourable course, which not infrequently follows the procedure, cannot be in any way rightly ascribed to the cœliotomy ; on the other hand, it is affirmed that cœliotomy is entitled to be considered, if not a curative procedure, at least one which materially aids recovery. The first view is taken by Fenger[5] and Borchgrevink,[6] the latter by König[7] and Teleky[8] ; representatives only of recent writers on the subject are intended by these names. It may be stated at once that the majority of surgeons to-day support the view that cœliotomy is of value as a remedial measure, but there is perhaps some weight in the statement of Borchgrevink that the tendency to spontaneous recovery has not been of late years sufficiently appreciated.

From an examination of an extensive series of cases, in the condition of serous tubercular peritonitis we appear justified at present in forming the following estimate of the value of cœliotomy. Pyrexia is a partial contra-indication, and will give rise to some hesitation in opening the abdomen ; disease elsewhere is not a contra-indication unless advanced ; in uncomplicated apyrexic cases the operation does no harm ; in the majority of cases it is still the experience of most surgeons that it is a valuable aid towards recovery.

(2,) Operations in the ulcerative or suppurative form, attempts to deal with tuberculous masses, local abscesses, and adhesions, have been attended with little encouraging success. The number of cases of fæcal fistula after such attempts is large. A paper by Mayo Robson[9] gives the result of this surgeon's experience in 7 cases of chronic intestinal tuberculosis. In the first and seventh cases, in which a condition of tuberculous peritonitis co-existed with tuberculous ulceration of the intestine, an exploratory operation had not cured or even arrested the disease, but the radical operation of removing the principal focus of disease was effectual in stopping the peritonitis, and, so far as could be seen, in curing the diffuse ulceration also. In most of the cases operation had been undertaken primarily to overcome obstruction, and he believed that short-circuiting a diseased loop of bowel in some cases provided such a condition of physiological rest that general hygienic treatment was capable of bringing about a satisfactory result. Such a procedure is applicable in cases where the general condition negatives excision or other radical treatment. Mayo Robson thinks that the

explanation of recurrence after cœliotomy is probably that the original focus of disease in the ovaries, tubes, or bowel had not been removed, and had again been the starting point for a further effusion of the disease throughout the peritoneal cavity. In a discussion which followed this paper Mr. Watson Cheyne said he was convinced that the treatment of tuberculous ulceration of the intestine by short-circuiting was sound practice, but he considered it debateable whether the searching for and removal of the original focus were desirable, though where this was definite and limited it should be removed.

No general condemnation or commendation of operation in these cases is at present justified. The first question to be asked is, Will the patient stand any operation? Secondly, if this is answered in the affirmative, does a simple cœliotomy appear likely to do any good? Thirdly, if there are signs of general matting of the intestines with a much thickened peritoneum and several localised fluid collections, probably purulent, then a simple cœliotomy is useless; on the other hand, more energetic measures, curetting, incision of abscesses, etc., have proved in the great majority of cases disastrous, and been followed almost always by fæcal fistulæ. Again, it appears likely that the opportunity of designing an operation to remove a known and diagnosed primary focus will not often occur. Such primary foci have, however, undoubtedly been removed with excellent results, and the opportunities have fortuitously occurred (*a*) in the course of cœliotomy in the exudative form of the disease, and (*b*) in certain cases of the ulcerative form, where operation has been called for by some imperative condition, such as bowel obstruction. Such opportunities are very fortunate, and will always be seized. According to present experience, therefore, operation in the pronounced form of the disease with caseous masses, abscesses, etc., does not promise a good result, and is called for probably under two conditions only: (*a*) When intestinal obstruction threatens life; and (*b*) When there is reason to believe that a primary focus is known and is accessible.

References.—[1]*Amer. Jour. Med. Sci.* July, 1902, p. 1; [2]*Brit. Med. Jour.* March 2, 1901; [3]*Cent. f. Chir.* No. 11, p. 303, 1902; [4]*Ibid*, 1901, p. 41; [5]*Ann. Surg.* Dec. 1901; [6]*Biblio. Med. Abt.* iii, Hft. 4, 1901; [7]*Cent. f. Chir.* 1890, p. 657; [8]*Cent. f. d. Grenzgeb. d. Med. u. Chir.* Bd. ii, 1899, Nos. 7, 8 and 9; [9]*Lancet*, 1902, vol. i, p. 162.

PHARYNX AND NASO-PHARYNX (Sclerotic Hyperplasia of).

W. Milligan, M.D.

A. Bowr Kelly[1] describes under the above name an affection of the pharynx characterised by great thickening of the pharyngeal and naso-pharyngeal tissues. He is of opinion that the pharynx and naso-pharynx may be the seat of a sclerotic hyperplasia unconnected with syphilis, rhinoscleroma, or any other known infectious disease; that a similar morbid process may manifest itself beneath the vocal cords as sub-glottic hypertrophic laryngitis: that in the hyperplastic variety of hereditary syphilis the histological appearances closely resemble those of sclerotic hyperplasia.

REFERENCE.—[1]*Lancet*, April 6, 1901.

PHTHISIS. *H. P. Loomis, M.D., New York.*

During the past year the subject of tuberculosis and the care of the tubercular has received more attention in the lay and medical press than any other disease. Nothing can be more evident in medical literature, than that the tuberculosis question is assuming a new aspect. There is every indication of a return to some of the ideas which existed in medicine before the announcement of the discovery of the tubercle bacillus. Opposition is being raised in various quarters to the present-day tendency to attribute to the tubercle bacillus the whole and only influence in causing tuberculosis. Many able clinicians in various parts of the world do not believe that it has been proved that the tubercle bacillus is the only cause of phthisis; and the sooner this fact is accepted and recognized, the greater is the probability of some sensible measures being taken to attack the disease.

Prof. Koch's views as to the unimportance of bovine tuberculosis as a factor in the spreading of the disease have met with a great deal of opposition, and during the past year a large number of experiments conducted by many investigators have been made. After a survey of the more important experiments bearing on this subject, the writer cannot see that Prof. Koch's views have been satisfactorily confronted. Bitterness in opposition to Koch has certainly biassed the investigations of a large number. While Koch believes that legislation against bovine tuberculosis is in excess of what is really necessary, he does not believe the acceptance of his theory will affect in the slightest degree the legislative and other measures adopted to reduce the danger to cattle and the spread of the disease among domestic animals.

Reading the literature on phthisis during the past year, one is impressed with the opinion of a large number of physicians, that the mere amount of food crowded into a tuberculous patient does not in itself constitute wise treatment. This is a distinct reaction from the German sanatorium idea, which has been in vogue for half a decade. The tendency now is to treat each patient individually, especially as to his digestive possibilities. A number of reports from the sanatoriums have shown that very large diets give *worse* results than those of more moderate amount. The writer believes that the kind of food and the amount should be determined in each case after due consideration—(1) Of the extent of the disease, and the amount of weight below normal ; (2) Of the activity of the process ; (3) Of the dietetic likes and dislikes of the patient.

Diagnosis.—The following aids to a diagnosis of phthisis have been brought forward in the last year or so :—

(1,) *The Röntgen rays* are being used more than ever, and have come to be considered of positive diagnostic value. The writer does not believe that they will ever replace physical examination, but they will be of great aid in confirming the presence and extent of conditions recognized by physical examination. It is found that appearances are presented under the X-rays which are of great importance : (*a*) Opacity, which depends on the extent and density of consolidation in the lung ; and (*b*) Restricted motion of the diaphragm on the affected side. On examining the chest, one should place his patient with his back to the Röntgen tube, which is placed at a fixed distance from the screen. Two feet from the tube to the screen is a convenient working distance. Imperfect results are obtained from photographing the chest, in comparison with studying its condition by means of a large screen placed over the chest. Permanent records can be made by mapping out on the chest with a dermographic pencil the appearances seen, and then retracing these lines on the face of transparent paper. Another method is to use a large sheet of celluloid, placing this on the patient's skin, but in front of the screen, and on this celluloid a shadow is traced as in the first method.

Agglutination reaction of the bacillus.—E. Rumpf and L. Guinard maintain that the agglutination reaction of the tubercle bacillus is of diagnostic value. They examined the agglutinating power of the blood in 107 phthisical patients. They obtained a positive reaction in 84 per cent

of these cases; 17 showed a reaction in a 1 to 5 dilution, and 73 in a 1 to 10 dilution. In all cases the diagnosis of tuberculosis was made as the result of physical examination, or by the finding of tubercle bacilli in the sputum. From a prognostic standpoint they confirm Koch's view that the intensity of the reaction corresponds to the degree of immunity present, and increases as the general and local conditions of the patient become improved. Their observations were made upon sanatorium patients. Acute and rapidly fatal cases, and those which show healed tubercular areas, as a rule, give a negative reaction. The authors think that in the latter instances this is due to the fact that the body has been successful in its fight against the disease. An endeavour was also made to increase the intensity of the agglutinating power of the blood by the subcutaneous inoculation of Koch's new tuberculin (bacilli emulsion). In this they were successful. By repeated inoculations they frequently obtained reactions in a 1 to 20, 30, or 50 dilution when it had previously only been present in a 1 to 5 or 10 dilution. Coincident with this increase there was a pronounced improvement in the general condition.

The blood in tuberculosis.—Appelbaum[1] has studied the blood in cases of tuberculosis in Harhardt's clinic with the following result: He divides the patients into those in the first, second, and third stages of the disease. In the first of these classes there is well-marked anæmia, the red blood-corpuscles averaging about 3,800,000; hæmoglobin, 69 per cent; leucocytes, 6,500; specific gravity, 1,049; solid residue, 19·5 per cent. In the second class the blood examination is absolutely normal. In the third stage well-marked anæmia develops. The average number of red blood-corpuscles is from 2,000,000 to 2,500,000; hæmoglobin, 40 to 45 per cent; specific gravity, 1,040 to 1,042; solid residue, 15 to 18·5 per cent. There is usually a leucocytosis of from 15,000 to 20,000. The differential count of the leucocytes in the first stage, in those patients showing the picture of an anæmia, shows a relatively normal number of polymorphonuclear cells and a slight increase of eosinophiles at the expense of the small mononuclear elements. In the second stage the eosinophiles become less numerous, the transitional forms rather more numerous; the relative percentages of the lymphocytes and polymorphonuclear cells are but little changed. In the third stage there is a well-marked relative increase in the percentage of polymorphonuclear cells. The eosinophiles are

diminished and the transitional forms relatively increased in number.

These observations serve to emphasise an interesting clinical fact upon which the reviewer has often insisted, namely, that during much of the course of pulmonary tuberculosis, though the face may be pale, a careful examination of the lips and mucous membrane will commonly reveal a colour even equal to that of the normal individual, while examination of the blood shows a normal percentage of corpuscles and hæmoglobin.

The writer believes that what has done most during the last few years to limit the ravages of this disease is the establishment by public bodies of **Laboratories** to which specimens of sputum can be sent by medical practitioners for examination, free of charge. This renders the early diagnosis of this disease among the poor possible in almost all cases.

TREATMENT.—The following new methods of treatment have been brought forward and emphasised in the medical literature of the past year :—

Izal.—This drug was recommended as early as 1895 by Delèpine, on account of its bactericidal action, but only within the last year has it been used extensively in England and France. It has been shown that **Izal,** when introduced into the alimentary tract, exerts there a specific antiseptic action, and that its principal channel of secretion is by the pulmonary mucous membrane. A dose of pure izal is 10 minims, and is best given in capsule. The drug has also been used by some investigators by injection directly into the larynx. Those who used the laryngeal method recommended 6 drachms, twice a day, of the following mixture : Pure medical izal and menthol, āā ℥iij ; glycerin, ℥viij. Remarkable results are reported by a number of observers from the use of this drug.

Urea.—Many physicians within recent years have called attention to the fact that those possessing the so-called gouty diathesis are seldom the victims of tuberculosis. It has been reasoned that the administration of **Urea** or uric acid might have a favourable influence upon phthisis. After a trial of two years, Sir Herman Weber, Dr. Henry Harper, of England, and others declare that in certain forms of tuberculosis this treatment by the ingestion of urea has met with great success. Indeed, one of the investigators goes so far as to assert that urea exerts a specific action on tuberculosis, quite as marked as mercury on syphilis. The urea is administered so as to begin with small

doses, 10 or 15 grains twice daily, gradually increasing up to 40-60 grains as a maximum. Obviously good results have been obtained from the use of urea. All cases have been reported benefited excepting those of: (*a*) Previous marked infection; (*b*) Marked gastritis; (*c*) Where the patient is running on a high temperature; (*d*) Acute miliary tuberculosis.

Spectrally Blue Light has been employed in Vienna and a number of places in Germany. A 32-candle-power incandescent lamp was used, connected with a concentrating reflector causing the light to penetrate the body and to act on the bacilli in the internal organs. The reflector raises the point of the focus to 3,000 candle power. It has been proved that within a short time cultures of tubercle bacilli were destroyed by this electric light. Cultures of the bacilli were also destroyed when placed for a short length of time at the back of a patient while the blue rays passed through the patient on to the cultures. Keyser, of Vienna, reports that after six weeks' treatment, consisting of six sittings daily, the night-sweats and the bacilli in the sputum were destroyed in the majority of patients. It is claimed that skin tuberculosis and eczema have been healed within four weeks by this blue light.

Creosote is still used by the general practitioner throughout the country, possibly more than any other drug, in the treatment of this disease; but those who see most of phthisis have come to regard it at the present time as a drug which only now and then, not always, has distinct advantage, and we think we are not exaggerating when we state that the conclusion has been reached by most persons that it does not have any direct or material influence upon the tubercular process in the lungs. It has been our experience that creosote does most good in those cases in which there is excessive catarrh of the mucous membrane lining the bronchial tubes, which gives rise to a large amount of cough and expectoration; and in those classes of patients who suffer from symptoms of intestinal indigestion and fermentation it acts as an intestinal antiseptic, and under its use these patients eat and digest their food more readily, and gain weight.

K. Wohrn[2] recommends the external application of a fluid soap, made with 5 to 10 per cent of **Formalin** and linseed or olive oil. He makes the soap chiefly for children, rubbing it on the back of the patient energetically for some minutes every evening. The skin is next freed from the soap with a damp towel, and then carefully dried. He has used the method in

12 cases, and has observed a complete disappearance of the sweating in 7. In 4 others the symptoms materially diminished, while in the last case the treatment was interrupted early on account of the irritation of the conjunctivæ. The soap is further to be recommended on account of its cheapness; 250 grammes (about half a pound), a quantity sufficient for four weeks, costs 1/4.

A. Nolda[3] recommends the use of **Tannoform Powder** in the treatment of night-sweats in those cases of phthisis which resist other forms of treatment—for example, that by atropine, camphoric, etc., and indeed often instead of these means. The powder is rubbed into the chest, or chest, neck, and back with the hand.

Hæmoptysis.—Following out Curschmann's recommendations, A. Hammelbacher and O. Pischinger[4] have employed subcutaneous injections of **Gelatin** in cases of phthisical hæmoptysis. They were very careful to employ neutralized solution (2½ per cent), and to observe extreme aseptic and antiseptic precautions. The solution, after being sterilized, was cooled to 40° C. (=104° F.), and from 50 to 150 cms. was injected in equal parts into the subcutaneous tissue of each side of the thorax. There was little pain at the time, but later on severe stretching pain was complained of. The characteristic taste—like sealing-wax and like indiarubber—was noted. This lasted longer after the first than after the subsequent injections. The injections were completed in from five to ten minutes. In two cases, the particulars of which are fully detailed, and in two others which are just mentioned, the result of the injections was satisfactory, and they feel justified in advising this means of combatting hæmoptysis in phthisis.

Inhalations.—Dr. Ruata uses a respirator which covers the mouth and nose, and in which is contained a sterilized sponge. On this sponge is poured, every two hours, a mixture of **Creosote** with absolute alcohol and pure chloroform. Thirty drops of this mixture are used each time. Except during meal times, this respirator is to be worn day and night.

Fever.—Erni has found that by tapping the chests of consumptives with a silver paper-cutter, it is possible to cause a reduction of temperature of from 0·2 to 0·5° C. This effect makes itself manifest immediately after the treatment, and persists for some time; under daily repetition of this measure the fever is said to be brought down to the normal. The amount of expectoration is at the same time greatly increased, which perhaps accounts for the lessened temperature observed.

Compression.—A number of articles have recently appeared concerning the treatment of pulmonary tuberculosis by operations securing **Compression.** Lemke reports 350 cases subjected to intra-pleural injection of **Nitrogen Gas,** by which he is able to compress more or less completely an affected lung. The following are the results obtained:—

(1,) Diminution of cough and expectoration, except during the first day or two after the injection. If cavities have been compressed the expectoration is always profuse immediately after the operation, and becomes decidedly diminished after the first or second day. There are almost no exceptions.

(2,) There is a remarkable effect upon the fever. In some of the cases injected when the temperature ranged from 100° to 103·5° daily, almost entire absence of fever was noted in from thirty-eight to seventy-two hours after the compression of the diseased lung. This diminution of fever may be due in part to the absolute rest insisted upon with such cases, but the observations leave no doubt about the effect of lung compression upon the fever of phthisical patients.

(3,) There has been almost uniform gain in weight, especially, of course, in those cases whose weight was below their normal. This gain in weight is sometimes very marked; some cases have gained as much as 30 or 40 lbs. within eight or ten weeks. There probably is no single indication of improvement in pulmonary tuberculosis so valuable as this gain in weight.

(4,) One very important effect is the almost immediate cessation of hæmorrhage. In the cases injected during an attack of hæmoptysis the effect was almost immediate and perfect.

The writer has extensively used this method, and concurs in the conclusions reached by Dr. Lemke.

See also following article on Sanatorium Treatment.

References.—[1]*Berlin klin. Woch.* 1901, vol. xxxix, p. 7; [2]*Deut. Med. Woch.* Oct. 24, 1901; [3]*Berlin klin. Woch.* July 1, 1901; *Münch. Med. Woch.* Dec. 10, 1901.

PHTHISIS (Sanatorium Treatment).

T. N. Kelynack, M.D., M.R.C.P.

It is now claimed that pulmonary tuberculosis is one of the most curable of diseases. The pessimism of the past has given place to a well-founded optimism. But although many cases of phthisis in the early stages are doubtless curable provided certain conditions be complied with, the mortality continues to present appalling proportions. Knopf[1] declares that "each

year the world yields up 1,095,000, each day 3,000, each minute two of its people as a sacrifice to this plague." Arthur Latham[2] shows that in this country one death out of every ten occurs from consumption. On the other hand, Dr. Ransome[3] has shown that there has been a marked diminution in the mortality from phthisis since scientific effort has been devoted to reform in matters concerning public sanitation. In 1838 the phthisis rate of mortality per 10,000 was over 38 ; in 1895 it was nearly 14, a diminution by almost two-thirds. The record of recent years has fully confirmed the soundness of the work of such pioneers as Bodington and McCormack in this country, and Brehmer and Walther in Germany. We now know that by the adoption of strict hygienic measures the best means are secured, not only for the prevention of consumption, but for its arrest, and in many instances permanent cure. Experience has conclusively shown that the rational conduct of the so-called hygienic treatment of phthisis is, generally speaking, most satisfactorily and economically carried out in sanatoria specially designed and managed for this class of case.

The main features of sanatorium treatment have been well described by Rufenacht Walters,[4] S. A. Knopf,[5] and others. At the British Congress on Tuberculosis, the following resolution was adopted, "That the provision of sanatoria is an indispensable part of the measures necessary for the diminution of tuberculosis." Sir James Crichton-Browne showed that the pathological and clinical evidence of the curability of consumption was convincing. Sanatorium treatment is now accepted as the best at present available ; it saves many lives, prolongs the days and alleviates the sufferings of those whom it cannot altogether rescue ; and aids in the work of prevention by isolating a number of active fountains of infection. In making provision for consumptive patients three classes have to be considered : (1) The affluent ; (2) The competent ; and (3) The indigent. Sanatoria for the indigent consumptive should be kept free from any taint of pauperism, and have no points of contact with the Poor Law. Evidence was given to show how beneficial the German Workman's State Insurance method proved in the combat with consumption. There are now in Germany 78 public sanatoria, affording accommodation for 20,000 poor patients annually, and some 16 more are contemplated or in course of erection.

In attempting the extermination of consumption it is necessary to take a comprehensive outlook. The provision of sanatoria

can only be considered as one feature in the campaign. It is necessary to arrange for the recognition and protection of all predisposed persons. The earliest manifestations of disease should be promptly recognized. It would be well if all cases of pulmonary tuberculosis could be notified to the medical officer of health. Many excellent private sanatoria are now available for the well-to-do. The affluent may also be able to arrange for effective hygienic treatment in their own homes, or seek suitable treatment in desirable climatic stations. For the working class public dispensaries and out-patient departments should provide means for the early diagnosis of the disease and selection of suitable cases for sanatorium treatment. Dispensary or home treatment is also necessary during the period of waiting, and also for those cases to whom institutional treatment is denied. J. F. Russell[7] records valuable results from the supervision of cases even when they are following their usual occupation and sleeping at home, by visits to a dispensary twice a day. A. Calmette and others also advocate the establishment of anti-tubercular urban dispensaries.

Until sufficient special institutions are available, it would be well if the general hospitals could set aside one or more wards solely for consumptives. Public hospitals for the observation of phthisical patients, and the treatment of acute cases, should be conveniently situated on the borders of our towns and cities. The public sanatoria proper are best placed in the country, but readily accessible from the town or city. Establishments are needed as prophylactic institutions. And as phthisis is so prevalent among the insane, it is necessary to provide special sanatoria for this particularly unfortunate class. Convalescent homes for cases of arrested consumption are much required. It would be well if means could be found for the more effectual after-care of patients who have undergone sanatorium treatment. For children, sea-side sanatoria are peculiarly beneficial. Homes for advanced cases are urgently needed. And it is very desirable that serious efforts should be made to secure some approach to hygienic system even in home treatment. For the wealthy, it may be sometimes desirable to select a suitable foreign sanatorium, in order that special climatic advantages may be secured. Parkes Weber and Guy Hinsdale[8] give valuable information concerning various climatic stations ; and Samuel West[9] clearly indicates the precautions to be taken before recommending residence abroad.

And here it may be permissible to severely reprobate the custom of smuggling cases of consumption into ordinary convalescent homes. Those responsible for the conduct of these institutions should arouse themselves in regard to this matter. It is a foolish policy to send an early case of phthisis to a convalescent hospital, where personal control is necessarily limited, when thorough treatment in a properly-conducted sanatorium might accomplish much.

R. W. Philip[10] urges that for the consumptive "cure can be attained, and other things being equal, should be undertaken, under the conditions which he must meet when recovery has taken place." This is perhaps a too restricted view of the situation. The best climate for the phthisical is that which permits of the freest out-of-door life. It is necessary to remember that not infrequently the good accomplished during the day, is undone by the non-hygienic conditions which are allowed to prevail at night.

In selecting cases for sanatorium treatment much discretion and wide experience is necessary. The examiner should be guided not only by his knowledge of the pathological condition, but also by an intimate acquaintance with the clinical features of the disease. It is not necessary to dwell on the various indications of tubercular disease of the lungs. The reader may consult with advantage the recent work of S. West, the lectures of F. L. Roberts,[11] and articles by Byrom Bramwell and A. Latham.[12] References to much new work are given in Schmidt's *Jahrbucher*.[13] Sir Dyce Duckworth[14] shows that it is necessary to remember the personal factor in tuberculosis in selecting cases; and the importance of bearing in mind the character of the soil, as well as the nature of the seed, has been enforced by W. H. Dickinson,[15] S. Mackenzie,[16] and others. Thompson Campbell[17] has sought to show how, by a careful study of signs and symptoms, some rough idea may be obtained of the duration of residence in sanatoria for pulmonary tuberculosis.

It is a remarkable fact that although the literature concerning the construction and management of sanatoria for consumption has now reached immense proportions, comparatively little has been written regarding the selection of cases for institutional treatment. The subject of course is peculiarly difficult, but the exigencies of the situation necessitate guiding lines. I have recently endeavoured[18] to indicate the general principles which should guide the practitioner in his selection of cases.

No doubt nearly all cases of consumption would receive benefit by judiciously applied sanatorium treatment. Undoubtedly many advanced cases are much alleviated by the adoption of "open-air" methods. And even for apparently hopeless cases hygienic measures often bring a certain measure of relief. But the demand for sanatorium treatment far outruns the supply. Efforts to meet the incessant and piteous appeals for assistance have necessitated the adoption of measures which secure little more than the minimum of benefit. At present cases have often to be kept waiting in a most unsuitable and highly prejudicial environment for many weeks, and not infrequently for several months, before entrance to a sanatorium can be arranged; and the six weeks to three months allowed for residence in such sanatoria are all too short to accomplish more than the beginnings of benefit. And yet, in spite of all, incalculable good is being accomplished. In many cases partial or complete restoration to health is attained. Here it may be well to urge that it would be well if all sanatoria would agree not to register any case as "cured" unless two years after leaving the sanatorium there is no evidence of activity. In many instances also patients greatly profit by the hygienic instruction received, and continue methods making for repair after leaving. And on the patients' friends and the public generally a beneficent educational influence has been brought to bear. But if the system is to be kept from falling into disrepute, and the greatest good extended to the greatest number, more care must be taken in the selection of cases.

It is particularly difficult to formulate conditions of admission to a public sanatorium. Some have insisted that only those cases should be passed who are presumably curable. In all cases a careful report should be supplied if possible by the practitioner who has had opportunities of watching the patient. For every case a period of probation should be allowed, during which the patient is under strict observation. Time and tact are needed in many cases to elicit data which may form the basis for a reliable opinion. In the case of certain sanatoria it has been proposed to submit all reports concerning applicants for treatment to a medical committee. But such a course presents objections and many difficulties. And it must be admitted at once that no absolute rules can be laid down for the selection of cases. He who seeks to be guided by a code, will quickly find himself blundering. Every case must be the subject of

serious study. In forming an opinion cumulative evidence is necessary. The too cautious and the too reckless will soon find themselves companions in the same ditch. Disappointment must sometimes be the portion even of the most careful, and unexpected fortune will occasionally wait on the least hopeful. It is much to be deplored that through the exigencies of the present situation many a doubtful case must forego "the only chance."

In selecting suitable cases for treatment a definite aim must be kept in mind. It is, that under the given circumstances not merely arrest is to be procured, but the patient must be securely placed on the high road to definite cure. A disappearance of the constitutional symptoms must be obtained, and a return of normal energy secured. In short, the patient must be fitted to successfully take his place again as a bread-winner. At present it is absolutely necessary to limit admission to such cases as may be expected to gain permanent benefit from a comparatively short course of sanatorium treatment. The case, therefore, should meet the following requirements :—

(1,) The constitutional evidences should be slight.

(2,) The local involvement should not be extensive.

(3,) The previous history of the case and the family record should give grounds for believing that there are fair powers of natural repair.

(4,) The mental and moral condition of the patient should be such as will permit of a full acceptance of the educational and disciplinary advantages offered by a sanatorium, and the social position such as will allow of a continuance of a reasonably hygienic life after discharge.

Briefly summarized, the most *favourable cases* will be found to be : Adults, well developed, with no antecedent disease and of good family history, out-door workers or engaged in an occupation which can be carried on under healthy conditions, free from alcoholic or other habits prejudicial to healthy life, country dwellers with good digestion, and presenting but little evidence of constitutional derangement. In females the continuance of menstruation is usually considered a favourable sign. A quiet, orderly, and hopeful individual makes the best patient. An acute onset in such a subject, even when accompanied by hæmoptysis or pleurisy, often gives way to a speedily established limitation and rapid restoration. Even when there is evidence of extensive involvement of lung, and considerable temperature,

an open-air treatment not infrequently works wonders. Many experimental observers consider that cases having an acute onset, when they react to open-air treatment, often do better than those in which the invasion was insidious and the disease has been allowed to progress along a chronic course. Cases with slight involvement of the larynx not infrequently do well. As a rule, however, it would be wise that such cases as these should be submitted to careful observation in the special hospital near town, and then, if found suitable, drafted on to the country sanatorium.

In most instances a case is considered favourable when there is absence of any marked rise of temperature, cachexia, anæmia, tendency to night sweats, dyspnœa, dyspepsia, or anorexia. A fairly slow and regular pulse of moderate tension is also a good sign. Hæmoptysis, unless it gives rise to marked anæmia, must not be considered a bar.

Given a lack of constitutional symptoms the less marked the physical signs the better. Limited involvement of one apex with compensatory action of the other lung constitutes a favourable local condition. The more extensive the lesion and the more active the tubercular process, generally speaking, the less likely is the case to do well. Abundant sputum is often an unfavourable sign, but there may be absence of expectoration in some acute cases. The amount and character of the sputum affords little evidence as to the patient's powers of restoration.

The following must be considered *unfavourable* cases for such sanatorium treatment as is at present available : Patients below puberty and those in advanced life ; town dwellers ill-developed and with a bad family history ; those of unsuitable temperament ; the alcoholic and reckless in habit ; those engaged in dusty and confined occupations ; and those who have suffered from former pulmonary or other diseases. Frail, slender, excitable, irritable neurotics generally prove bad subjects. Cases in which tubercle has become engrafted on a lung already the seat of chronic bronchitis and emphysema generally do badly. Even when there is no history of such preceding pulmonary involvement, cases in which bronchitic signs persist almost invariably give disappointing results. Young girls who break down at puberty often prove unfavourable subjects. All cases must be considered grave in which there is marked debility, a high degree of anæmia, or characteristic cachexia. Persistent high temperature, sweats, uncontrollable cough, marked dyspnœa,

intermittent attacks of pleurisy, anorexia, vomiting, dyspepsia, diarrhœa, insomnia, nervous irritability, despondency, or melancholia must all be considered unfavourable manifestations. A rapid, irregular, unstable pulse of low tension is very rightly considered a bad sign; also albuminuria and glycosuria.

Pregnant women are usually not welcome in a sanatorium; and after confinement the disease generally makes rapid progress. Of course cases of phthisis in diabetic, alcoholic, and syphilitic subjects must be passed over.

When tubercular infection follows post-influenzal debility the prognosis is grave. When the expectoration is profuse and contains fragments of lung tissue, serious destructive changes are in progress. Fœtor of the sputum may sometimes be completely overcome by appropriate treatment. The number of tubercle bacilli in the sputum affords no reliable guide to prognosis. When there is marked laryngeal involvement, fistula in ano, or other evidence of generalized tubercle, the outlook is serious.

As to the local signs, in many cases, even when but few indications of local involvement are apparent, the general condition will immediately mark the case as an unfavourable one; and, on the other hand, although there may be extensive cavitation and widespread involvement of one or even of both lungs, yet when the general condition is fairly good, such cases are greatly benefited by out-door treatment. But it is well to realize that the old pathological grouping dependent on so-called "stages" is not to be relied upon in forming a prognosis or as indicating degrees of "curability." In selecting cases for treatment I am more and more inclined to consider physical signs of subordinate importance. Although, roughly speaking, we may say the more extensive the disease the more serious the case, this often requires serious qualification. A reliable conclusion can only be arrived at by considering the *whole* case.

But at best it must be remembered that any tabular expression of favourable or unfavourable manifestations is merely tentative and provisional. A reliable opinion as to the suitability or otherwise of a case for hygienic treatment in a sanatorium must be the outcome of a thorough study of the individual case. E. R. Baldwin[19] has sought to group the clinical indications under the heads of favourable, doubtful, and unfavourable; but while his lists are suggestive, they need interpretation with much discretion.

I have elsewhere[20] shown the necessity of being guided by correct principles iu the conduct of sanatoria. The chief instruments to be employed are: (1) continuous exposure to fresh air; (2) free access to sunlight; (3) regulated rest; (4) controlled exercise; (5) abundant feeding; (6) obedience to hygienic requirements; and (7) strict medical supervision. J. Walker and C. C. Brewer[21] have well indicated many of the essential items connected with the construction and administration of sanatoria in this country.

There is much need for organised assistance whereby an effectual "after care" might be possible for patients who have received benefit from institutional residence. Much valuable information has been collected[22] respecting the facilities at present available for the satisfactory treatment of consumptives in the various hospitals and infirmaries in this country. Attention is being directed to the necessity of providing suitable sanatoria for the poor by "The National Association for the Prevention of Consumption and other forms of Tuberculosis." The work of the recent Berlin Conference[23] has indicated lines for international co-operation.

For details the records of recent congresses and the special journals devoted to an exposition of the subject should be consulted.[24]

REFERENCES.—[1] "*Tuberculosis as a Disease of the Masses,*" 1902; [2]*Lancet*, Aug. 16, 1902; [3]*Parkes-Weber Prize Essay*, 1898; [4] "*Sanatoria for Consumption*"; [5] "*Pulmonary Tuberculosis,*" *etc.* 1899; [6]*Trans. Brit. Cong. on Tuberc.* vols. ii and iii, 1902; [7]*Post Graduate, N.Y.* July, 1902; [8] "*Cohen's System of Phys. Therap.*" vols. iii and iv; [9] "*Dis. of Organs of Resp.*" 1902; [10]*Enc. Med.* vol. vii, 1901; [11]*Lancet*, April 19, 1902; [12]*Ibid*, Dec. 28, 1901; [13]1902, Bd. 275, Hft. 8, s. 193; [14]*Lancet*, Nov. 9, 1901; [15]*Ibid*, May 10, 1902; [16]*Ibid*, May 31, 1902; [17]*Ibid*, Dec. 7, 1901; [18]*The Hosp.* Oct. 4, 1902; [19]*Inter. Clin.* vol. iii, 1901; [20] "*The Selection of Consumptive Cases for Sanatorium Treatment,*" 1902; [21]*Lancet*, Nov. 29, 1902; [22]*Brit. Med. Jour.* Nov. 8, 15, 22, 1902; [23]*Lancet*, Nov. 1, 8, 1902; [24]*Zeits. f. Tuberculoso und Heilstättenwesen; Tuberculosis; The Journal of Tuberculosis.*

Sanatorium Treatment. *H. P. Loomis, M.D., New York.*

The sanatorium treatment of tuberculosis is still considered to be that which produces the most certain results to the patient. The writer's connection with two of the largest sanatoriums in the East has brought to his attention the following facts, which are of practical importance in the sanatorium care of the tubercular.

The shortest period of treatment that will allow a patient to leave a sanatorium, cured, and able to return to his occupation, is three months. In more advanced but still favourable cases a period of less than six months will not be found to give an approach to recovery, and this should therefore be the average time, taking into consideration, on the one hand, the maximum benefit to the individual, and, on the other, the pressure on the accommodation which exists in most charitable institutions. Thus each bed can on an average accommodate only two patients a year, and in making provision for the care of the consumptive this factor should be kept in view by public bodies and the directors of sanatoriums. The duration of residence thus creates a limitation for the admission of patients, and some of the points which assist in determining the acceptance or rejection of a patient may be here noted. Patients presenting the following features are not, in the writer's opinion, favourable sanatorium cases :—

(1,) When there is an habitual exacerbation of temperature to the extent of from 102° to 104° ; if a temporary rise of temperature exists, it should not be a barrier to a hopeful prognosis.

(2,) Cases with a marked prostration of the vital powers, at a time when the physician's examination of the chest does not reveal a marked lesion.

(3,) Cases with a marked proclivity to the disease, as evidenced by a bad family history. These are apt to run an acute course.

(4,) An habitually rapid pulse of over 100, which is not reduced to normal when an individual lies down, is a bad sign.

(5,) The presence of laryngeal tuberculosis.

(6,) The existence of albuminuria, which is considered to be dependent on the morbid process in the lungs.

The essentials of sanatorium treatment as understood and practised at the present time may be summed up in the following terms : **Rest, Out-door Life, Forced Feeding, Medical Supervision.**

The last is the key-note to success in all treatment of tuberculosis. It must be constant. The physician must study the peculiarities of each patient, and individualize his treatment. In appalling numbers the victims of this lack of supervision are to be found in all open health resorts. It is a well-known fact that when pulmonary tuberculosis becomes arrested, the disease cannot be considered as permanently cured unless good health has been enjoyed for several years after the arrest of the disease.

PLAGUE. *James Cantlie, M.B., F.R.C.S.*

Plague has prevailed in *India* since 1896, and there are but few districts or cities in which the disease has not appeared. The most serious outbreaks have always been reported from the North-West and West areas, the Bombay Presidency and the Punjab being the chief centres. As the spring of 1902 advanced, the mortality from plague increased, until during the week ending March 22 the maximum seemed to have been reached, when 26,108 persons died of the disease. With the hot weather the mortality slowly decreased, and by July the weekly death-rate was just over 1000. The autumn saw a further recrudescence, and during the week ending November 8, 1902, the death-rate stood at 10,488. The Punjab was at one time severely affected, well nigh 20,000 persons dying of the disease in this district alone in one week. Plague has not as yet caused a heavy mortality in Bengal, and although in this province many densely populated and most insanitary cities are met with, the outbreaks have been quite limited. In southern India the state of Mysore has suffered most severely ; but although in the Madras Presidency there have been numerous centres of plague, the disease has not reached the city of Madras itself. The reason for this peculiarity of distribution has not been ascertained, and is a very interesting question, since nothing connected with sanitation, intercommunication, or the action of the authorities seems to have played any part in determining the immunity.

In *Egypt* plague disappeared wholly during December, 1901, but in January, 1902, a recrudescence occurred, and although the outbreak was kept well in hand, sporadic cases (chiefly in Alexandria) appeared occasionally until November, 1902.

In *Mauritius*, with but short intermissions, plague has prevailed for some five years, but the outbreaks, although persistent, have been fairly limited in extent and virulence.

In no other part of the world has plague obtained a serious hold. Australia would appear to be wholly free of the disease. Cape Colony, also, has had only one or two cases since September, 1902. In Hong Kong the death-rate from plague during 1902 was under 700 ; indeed, except in the year 1895, no such favourable report for the year has been issued from Hong Kong since plague appeared there in May, 1894. In the Philippines, Japan, Manchuria, and Mongolia plague has prevailed, but not to any alarming extent. Madagascar must be added to the list of

plague-infected countries, but the outbreak, so far as is known, has been quite limited.

In Europe, with the exception of a few cases in Odessa, plague has not appeared during 1902. In South America the disease would seem to have died out; and with the exception of a few cases in San Francisco, and quite recently in Mexico, North America has been wholly free of it.

The bacillus of plague.[1]—It is now generally accepted that the bacillus found by Kitasato in 1894 was not the specific organism of plague, and that therefore the term "Bacillus of Kitasato-Yersin" is a misnomer. Recent observations have shown that the bacillus isolated by Yersin in 1894 is the specific organism, and that the bacillus found by Kitasato is only to be met with in septicæmic cases, that is, when the organism has reached the blood. The real bacillus is found, in the early stages of the disease, in the fluids in or around a plague-infected gland, or in the sputum in pneumonic cases; and the bacillus found in the later stages of the disease, in the blood, is morphologically quite different.

Schultz,[2] with a view to determine the duration of the life of the organism under suitable circumstances, conducted a series of observations which showed that the bacillus can, under certain conditions, retain virulence for four years. This prolonged life is due not to the formation of endogenous spores, but is favoured by a shrinking of the protoplasm, in which condition bacteria can withstand death for a lengthened period.

Plague and other hæmorrhagic septicæmias.—Konstansoff[3] finds that plague occupies a special place in regard to other hæmorrhagic septicæmias; active immunity against plague has no influence against infection with chicken cholera or swine fever, and *vice versa*.

Pathology.—Flexner[4] divides the *primary* buboes of plague into two groups: (*a*) One being the gland corresponding to the skin area of the original reception of the virus; (*b*) The other the contiguous group of glands representing the extension of the infection. *Secondary* buboes may be met with in any or all glands of the body, and are due to general blood infection. This view implies the belief that infection commences at a definite point, be it at a skin abrasion, on the surface of the tonsil, the mucous surface of the respiratory tract, or by way of the stomach or intestine. This view obtains generally at the present time, and serves to explain the enlargement, first of a single proximal

gland, then adenitis of the group of glands of which the proximal is a member, and finally the general enlargement of the glands of the body when the virus of infection has become generally distributed.

Coagulating power of the blood in plague.—Alice Corthorn[5] states that in 10 out of 32 observations she noted that there was no separation of the constituent parts of the blood at all. It remained a dark-red treacle-like fluid. In several other cases the blood clot formation was imperfect, and the serum which separated was scanty and reddish.

Agglutinating property of blood serum in cases of plague.—Cairns,[6] from observations made during the outbreak of plague at Glasgow, came to the following conclusions: (1) During the early days of the disease the reaction is not manifested, and consequently in rapidly fatal cases is probably never obtained. (2) Agglutinating properties first appear in the blood towards the close of the first week of illness (dilution of 1 in 10). These gradually increase in intensity up to the sixth week of illness, and are sometimes maintained at a high level as late as the eighth week. After this date, however, in the majority of cases a gradual decline in the agglutinative power of the serum becomes apparent. The rates of increase and decrease of the reaction, generally speaking, are approximately equal; occasionally, however, the reaction wanes and disappears in a shorter period than that occupied between its appearance and point of maximum intensity. (3) In very severe cases ultimately proving fatal, the reaction, though present, never reaches a high degree of intensity. In cases of almost equal severity, however, in which an early and rapid convalescence followed, the reaction was of a more marked character. (4) In the mildest forms of plague a high degree of agglutinating power is probably never attained, and in some it appears to be absent. Stricker, in fact, states that the reaction never appears in this class of case; but this is undoubtedly too sweeping an assertion, as an undoubted and characteristic reaction in a dilution of 1 in 25 was obtained in two such cases. (5) The reaction, as a rule, is most marked in those severe cases characterized by an early and favourable crisis, and in such cases it disappears very slowly, having been shown to be present as late as the fifth month after the primary illness.

Injection of anti-plague serum.—Denys and Tartakowsky[7] consider that the injection of anti-plague serum is considerably enhanced if it be injected into the neighbourhood of the infective

focus in such a manner that the serum is carried by the lymphatic vessels towards this focus. Their experiments in this direction were carried out in animals, but the authors believe similar treatment is applicable in man.

Snake venom in treatment of plague.—Hem Chandra Sen[8] recommends the fresh venom obtained from young black cobras (Keuta variety) as a stimulant in plague. He condemns its administration hypodermically, but prefers giving it by the mouth with bile or arsenic.

Dangers of inoculation.—One of the dangers of a serum becoming contaminated was well illustrated by an occurrence during anti-plague inoculations in the Punjab in November, 1902, when some eighteen persons died after being inoculated against plague. It was found that the serum had become contaminated by the bacillus of *tetanus*, and that the unfortunate mortality was ascribable to that cause. This, however, in no way affects the general question of plague prophylaxis, but indicates the extreme care necessary in preparation.

Rat plague.—Edington,[9] from an experimental study of rat plague, comes to the following conclusion : " Since we have in the rat a disease which is communicable to guinea-pigs but not to rabbits, and to which rabbits are also refractory even after it has been passed through the guinea-pig ; and since, moreover, inoculation of the rabbit with this rat bacterium in its virulent form gives no protection against a subsequent inoculation with bubonic plague, it seems clearly proved that this rat plague cannot be bubonic plague. The peculiar susceptibility of pigeons to the rat disease also indicates the difference between that malady and bubonic plague. In future steps will have to be taken in case of rats being affected with a disease simulating plague, to inoculate other animals than guinea-pigs. My experiments show that the rabbit is probably the best animal to use in conjunction with guinea-pigs." Professor W. R. Simpson combated these conclusions, and holds the opinion that the disease of rats and man is one and the same.

Destruction of rats.—Rosenau[10] investigated the reliability of Danyz's virus as a destroyer of rats. The results are not very encouraging. The virus was so strengthened as to cause the death of the rat by ingestion, but the virulence is apt to fall off on exposure to light and air. Large doses kill rats, but smaller doses only render them immune, leaving the animals still impregnated with the bacilli of plague, although free of signs

and symptoms. Rosenau concludes that Danyz's virus is far from being a sure means of exterminating these rodents in a particular place.

Disinfection of ships by the Clayton method.—Calmette[11] tested the bacteriological effects of the Clayton gas—a mixture of SO_2 and SO_3—in the disinfection of ships. This gas is generated from a special apparatus placed along the vessel intended to be disinfected, and conducted by an inlet pipe to the lower part of the hold. Its spread through the vessel is encouraged by the suction of the outlet pipe, and after a period varying from an hour or two to several hours, according to the bulk of the cargo, disinfection is completed.

Climatic buboes, pestis minor, and mild plague.—The subject of buboes without specific local cause has occupied the attention of several observers during the past eight years, in fact ever since bubonic plague appeared in Hong Kong in 1894. In 1893 the writer first drew attention to pestis minor by recording an experience of some twenty cases (afterwards increased to thirty-three) that he had observed in Hong Kong, and Goddard afterwards gave details of several cases he had observed in the crews of ships in the British navy on the China station. The writer was inclined to connect the complaint with plague, as shortly afterwards true plague appeared in the locality. There exists, however, a confusion of ideas concerning the meaning of the term, and the majority of authors classify mild cases of true plague (*pestis ambulans*) with *pestis minor*. This, however, is not the meaning the writer attaches to the disease. Mild plague, or pestis ambulans, he defines as mild cases of true plague, usually bubonic in nature, occurring coincidently with an epidemic or outbreak, just as there are mild cases of other epidemic diseases. Pestis minor, however, may precede, co-exist with, or succeed a true plague outbreak, or may prevail independently of an epidemic of true plague. There is no such thing as "mild plague" without an epidemic being present, whereas pestis minor may exist where true plague is unknown. In the writer's opinion pestis minor is a specific disease allied to, but capable of existing independently of, true plague outbreaks.

Climatic buboes is a term which has recently crept into tropical medical literature. The meaning and explanation of the disease remains at present undetermined, but the writer believes they are all cases of *pestis minor*. Climatic buboes as generally described give signs and symptoms wholly analogous

to the descriptions of pestis minor we are familiar with. There exists a febrile state, an enlarged inguinal gland which may or may not go to suppuration, and the cause of which cannot be assigned to any local site of infection.

Rife[12] gives an account of an outbreak of climatic buboes on board a ship cruising in the Carolines. Fifteen cases developed within a very short period, the original source of infection being a sailor who had a long attack of climatic bubo. The fact that almost all the patients had signs of abrasion or ulceration in the lower limbs does not alter the significance of the outbreak; as it would be a rare coincidence for persons with scratches, or abrasion, or ulcer of the lower limbs to develop an inguinal bubo simultaneously. Therefore common infection must have been at work, and no doubt an open surface would hasten infection; but that some cause other than mere "climatic" influence was at work seems a rational conclusion. The writer holds that pestis minor and climatic buboes are identical, and that the term "climatic" is untenable: either another term must be found, or that of bubonic pestis minor adopted.

References.—[1]*Jour. Trop. Med.* Feb. 15, 1901; [2]*Cent. fur Bacter.* Bd. xxix, No. 5, p. 169; [3]*Ibid*, No. 3, p. 86; [4]*Amer. Jour. Med. Sci.* Oct. 1901; [5]*Brit. Med. Jour.* May 10, 1902; [6]*Lancet*, July 22, 1901; [7]*Treatment*, July, 1901; [8]*Indian Med. Rec.*; [9]*Lancet*, June 8, 1901; [10]*Med. Rec.* Oct. 12, 1901; [11]*Jour Trop. Med.* Oct. 15, 1902; [12]*Jour. Trop. Med.* Aug. 15, 1902.

PLEURISY. *H. P. Loomis, M.D., New York.*

Tapping of the chest for the removal of fluids is ordinarily such a simple and safe procedure, that the possibility of serious accident scarcely ever enters the physician's mind. The knowledge that accident may occur is not, however, a real handicap; it merely serves to make us more circumspect in performing the trifling operation, and ready when untoward circumstances arise. There is one particular complication, which, although exceedingly rare, has in the past aroused remarkable interest, *viz.*, *albuminous expectoration*. After studying the literature on the subject and analyzing the numbers of cases reported, the following conclusions are reached[1]:—

(1,) Albuminous expectoration is a very rare complication of thoracocentesis. It is usually serious and sometimes fatal.

(2,) It consists in the expectoration of a viscid albuminous fluid closely resembling the fluid of serous effusion.

(3,) The condition is best explained on the basis of an intense congestion and œdema of the lungs (congestion by recoil).

(4,) The principal cause seems to be either too rapid or too great a withdrawal of fluid.

(5,) Serious cardiac disease, and morbid conditions of the opposite lung, hindering expansion, are predisposing causes.

(6,) Under all circumstances, but particularly when these complications exist, aspiration should be performed slowly. If the effusion is large the amount withdrawn at any one time should be moderate.

(7,) In some cases it may be wise to perform several tappings, drawing off a small quantity each time.

(8,) The treatment consists in counter-irritation, venesection, and artificial respiration, together with the use of **Morphine** if the cough is severe.

Dr. Alfred Wolff,[2] after giving a very complete historical survey of the progress of our knowledge of pleural effusions, enumerates the various micro-organisms which have been found associated with pleurisies. By far the greater number of cases are associated with the bacillus tuberculosis, the proportion being variously stated at from 90 to 98 per cent of all cases. The tubercle bacillus is, however, generally associated with some other micro-organism. Other bacteria which may be found, either alone or associated, are diplococci, as in meta-pneumonic pleurisies; staphylococci (pyog. aureus, albus, and citreus); and streptococci in purulent effusions. Diplococcic effusions may be absorbed without operation; in the other cases this is unlikely. The diagnosis of tuberculous pleurisies cannot often be made by bacteriological means.

Dr. B. Przewalski,[3] of Charkow (Russia), directs attention to an early symptom of pleurisy with effusion. He detected this symptom in 19 cases, 14 of which had a sero-fibrinous and 5 a suppurative effusion. In every instance the intercostal spaces became more narrow, and the intercostal muscles more rigid on the affected side, than on the healthy side. These symptoms were due to an abnormal contraction of the inter-osseous muscles, and were analogous to the muscular contraction met with in affections of the joints. This symptom was especially marked in children.

Tuberculin reaction after pleurisy with effusion.—D. Romani[4] discusses the great diversity of opinion as to the proportion of acute pleurisies which are tuberculous, and attributes it to the

varied methods of the investigation, and the unreliability of such a method as examining the effusion for bacteria, the "cyto-diagnosis" of Widal being better. He has used **Tuberculin Injections** for diagnostic purposes. He defines positive reaction as one raising the temperature to at least 100·4° F. The author found Koch's tuberculin the most reliable for this purpose, and the injections employed have varied from one-sixtieth to one-twelfth of a grain. The author recommends an initial injection of one-twelfth of a grain in adults, made with thorough antisepsis, in the deltoid region. The febrile reaction occurs after eight to sixteen hours, and the temperature is normal again in twelve to thirty-six hours. The injection should not be made till the patient has been apyretic for several days, and preferably after complete absorption of the effusion. He reports 14 cases, of which 10 reacted to tuberculin; in one of them the condition of the left apex became suspicious before she left the hospital. The author considers that every idiopathic pleurisy indicates a latent tuberculosis in the glands or lungs, only detectable by such a delicate diagnostic agent as tuberculin. This explains why pleurisy, even in robust individuals, may end in tuberculosis, or may have no sequelæ, according to the better or poorer hygienic environment of the person after the attack.

Prognosis.—Dr. R. C. Cabot, of Boston,[5] presents a communication based on a study of 300 cases, from which he concludes that the outlook is bright in cases of pleurisy not having a family history of tuberculosis, and that even if pulmonary tuberculosis developed subsequently, the type of the disease was usually mild.

Treatment *of hæmorrhagic pleurisy*.—Raymond Bernard[6] relates four cases of hæmorrhagic pleurisy, in which, after evacuation of the fluid, the subcutaneous injection of **Gelatinised Serum** apparently prevented further effusion. In the first case the effusion persisted after two aspirations, but after the third, by which more than a litre of fluid was removed, 200 grms. of gelatinised serum were injected under the skin of the thigh. The injection caused some local cellulitis, which, however, soon improved. Punctures made a week and fortnight after the injection gave only 150 grms. and 2 c.cm. of fluid respectively.

In the second case, on June 15th, 2500 grms. of blood-stained fluid were withdrawn, and on the 23rd, 2050 grms. On the 24th, and again on the 25th, 200 grms. of gelatinised serum were injected subcutaneously, and caused some local disturbance

with fever, nausea, and headache. On July 2nd only 200 grms. of fluid were obtained by aspiration, and nine days later the patient was discharged convalescent.

In the third instance, 2700 grms. of brick-coloured fluid were removed. The injection of the serum, which was done at once, caused a marked febrile reaction. Four days later 500 grms. of fluid were evacuated, and ten days after the injection no fluid could be obtained.

The last case was a very mild one. The patient suffered very little discomfort; 1800 grms. of fluid were evacuated by paracentesis. The injection of serum caused no local or general disturbance. Two days later 700 grms. of fluid were withdrawn, and a second injection was performed, after which the patient made a rapid recovery.

The good results obtained in these cases cannot altogether be attributed to the use of gelatinised serum. The patients were all young soldiers with healthy hearts, livers, and kidneys. Bernard concludes that the use of the serum moderates or suspends the effusion by the exercise of its hæmostatic power, but that it has no influence whatever upon tuberculosis, the general primary cause of the effusion.

References.—[1]Read before Coll. of Phys. of Phil. Dec. 1901; [2]*Med. Woch.*; [3]*Cent. f. Chir.*; [4]*Gaz. deg. Osped.*; [5]Meeting of Assoc. of Amer. Phys.; [6]*Lyon Méd.*

PNEUMONIA. *H. P. Loomis, M.D., New York.*

Diagnosis.—The diagnosis of pneumonia at an early stage, and of so-called central pneumonia at any stage, is often a matter of no little difficulty, and it would naturally be a great gain to possess a ready and reliable means of recognition when the usual physical signs and symptoms are wanting. Such an expedient, it would appear, is to be found in the demonstration in the **Blood** of leucocytes that exhibit a peculiar reaction to *iodine*, for which reason the name *iodophilia* has been given to it by Dr. Theodore Dunham.[1] The reaction, it is true, is not exclusive to pneumonia, occurring also in the presence of suppuration and of some other disorders; these, however, are readily recognizable by other means. The reaction is developed by exposing a spontaneously dried blood-smear to the action of a solution containing three parts of potassium iodide and one part of iodine in one hundred parts of water, brought up to a syrupy consistence by the addition of gum arabic. Normally the lymphocytes and the eosinophile cells are not affected by the stain, while the

polymorphonuclear neutrophiles either are unaffected or their protoplasm is tinged a faint pinkish or brownish colour. Under some pathological conditions, however, the protoplasm of a certain proportion of the polymorphonuclear neutrophiles takes on a reddish-brown colour, which in some is diffuse, in others forming a granular network, in still others appearing in large or small refractive granules varying from a light pink to a dark red. The condition seems to occur always in the presence of progressive suppuration and of progressive pneumonia, and also of a few other morbid conditions. The intensity of the reaction seems to be closely related to the intensity of the suppurative process. The special value of the reaction in cases of pneumonia resides in the fact that it occurs before their appearance.

Prochaska[2] has examined bacteriologically the blood of 40 consecutive cases of pneumonia. The blood, nearly 10 c.c. in amount, was collected by a sterilized syringe from one of the arm veins after elastic constriction and thorough cleansing of the skin. Control experiments with normal individuals proved the reliability of this method; in no instance were contaminations obtained; 40 cases were examined, of which 7 were fatal. In 38 instances the pneumococcus was obtained. The cultures were made at varying periods of the disease, sometimes as early as the second day. In two cases positive results were obtained on the day following the crisis; in one of these there developed later a muscular abscess. In one case, followed by an empyema, pneumococci were found in the circulation on the second day after the crisis. In another instance with slow resolution, organisms were found three days after the febrile crisis.

Little change has been made in the treatment of pneumonia which has been in vogue during the past few years. The **Anti-pneumococcus Serum** from which so much was promised, is not used at all in New York. It has been tried by Dr. Alexander Lambert and Dr. G. E. Tyler, and both of them report that they are unable to convince themselves that it has any value. The best that can be alleged for the serum is, that it does not interfere with any other treatment, nor is it harmful in any quantity in any stage of the disease. **Creosote** is the only new drug which has been extensively used by a large number of practitioners. Enthusiastic articles have been written, and some even claim that it is almost a specific, but it is doubtful if the results warrant the conclusions drawn by some writers. The exact status of the treatment of lobar pneumonia at the present time,

the writer believes can be best ascertained by a careful study of the ordinary treatment of this disease in the large metropolitan hospitals. He has studied the treatment as practised to-day in four of the largest hospitals of New York : *viz.*, the Presbyterian, Roosevelt, New York, and Bellevue (2nd division). The treatment is practically the same in all these institutions, and the following will represent the present general method as adopted by all these institutions.

TREATMENT.—When a patient enters any one of these hospitals suffering from pneumonia, he is given **Calomel,** usually in small doses, often repeated, and this is followed by a **Saline** in the morning. The calomel is repeated during the course of the disease if necessary. All the hospitals at the present time apply local measures to the affected lung, when the pain and distress is intense. **Linseed Poultices** are still used more than any other local application. It would appear that these applications are not used by the general practitioner, as much as they are in the hospitals. In one of the hospitals an **Electric Poultice** is often used instead of the flaxseed poultice, being more readily applied, cleaner, and better keeping a constant temperature. In some of the hospitals the **Pneumonia Jacket** is used ; this is not in use in others.

The treatment of *fever* varies more than anything else. Some hospitals tub most of their cases with a temperature of 103° and over, when they are alcoholic and delirious, and sponge regularly every three hours for ten minutes all cases when the temperature reaches 102°. This plan of checking fever is not adopted in all hospitals ; 103½° is the ordinary sponging temperature ; at some they wait until the temperature reaches 104°, and then use **Wet Packs** applied to the anterior half of the body, and wrung out of water at 80°. It is well known that the treatment of the fever in pneumonia is not now considered so important as it was formerly. We all remember the time when cold sponging, antipyretics, drugs, etc., were constantly employed to keep the temperature below 102°. Now it is believed that a short run of temperature in this disease has but little effect on cell protoplasm. Some foreign bacteriologists claim that the pneumococcus will not grow at the high temperature (104°), while they thrive at a temperature of 102° or below, and therefore advise not to attempt to reduce the fever in pneumonia.

For the severe *pain* over the affected lung, which is so often the prominent symptom of the ushering-in stage of this disease,

two methods of relief are in vogue in all the hospitals : (1) **Poultices** to the side ; (2) **Morphine** hypodermically if necessary. At one of the hospitals they often **Strap** the side in place of applying poultices.

For the *insomnia*, which is often a distressing symptom, the one drug which is universally used is **Codeine** in $\frac{1}{4}$-grain doses. At some hospitals it is often combined with 15 grains of **Trional.** The drug which is next most commonly used for this condition, is **Bromide of Potassium** in 20-grain doses. Three of the hospitals use **Codeine** (gr. $\frac{1}{4}$) for *cough*, and one uses **Heroin.**

As is well known, the critical time in a case of pneumonia begins with the evidence of *cardiac failure*. The first indication of systolic weakness and failure of arterial tonicity, leads to the administration of cardiac stimulants. The three cardiac stimulants which are used in all the hospitals, are **Alcohol, Strychnine,** and **Digitalis.** Of these the one that stands first, and on which the greatest reliance is placed, is alcohol, always in the form of whisky, and practically always in the constant dose of $\bar{z}$ss, the time of its administration varying from every four hours to every hour according to indications.

There has been a peculiar thing about the use of the second drug above named—**Strychnine.** Most can remember when strychnine was seldom if ever given as a cardiac stimulant in pneumonia. Now it is universally used. Clinical experience has confirmed what physiological experimentation had long ago proved. When we remember the physiological action of this drug, how it stimulates the heart and tones up the arterial system by its direct stimulant action on the vaso-motor centres, and not (like alcohol and digitalis) by action on the heart muscle and the arterial wall, we find an explanation of its effectiveness. Strychnine is never followed by the secondary depression so often seen after alcohol. Talking over its use with the various house physicians, we learn that the two indications which call for its use are : (1) When whisky is not able to hold the heart, they always use it, secondary however to whisky—to reinforce it, as it were ; (2) When there is evidence of pulmonary œdema and cyanosis, then it is generally given hypodermically in one-twentieth-grain doses. At two hospitals this second symptom is the special indication for its use. All alcohol cases were especially found to respond to the action of this drug.

At all the hospitals, when in spite of alcohol and strychnine the pulse became very rapid (130 and over) and feeble, **Digitalis**

was given, either ℥v of the tincture every three hours, or ℥ij of the fluid extract every four hours. This drug is not given as a routine practice, only when after whisky and strychnine have both been given, heart failure is found to be increasing.

The only other drug that we found used in the hospitals was **Nitro-glycerin**. All the hospitals use it occasionally. Besides the pulse of high arterial tension, that may call for its use in any case, *cyanosis* is the one symptom that especially indicates its use. At one or two hospitals it is always used when cyanosis becomes marked ; at one, when œdema of the lungs develops it is generally given. Atropine and caffeine are not given in a case of pneumonia in any of the hospitals.

Oxygen is always given as soon as pulmonary œdema develops and cyanosis is marked. One change in the administration of oxygen that has to be noted is, its earlier use : it is not now only given as a last resort. Many remember the time when if the oxygen tank came into the sick room we all feared the end was near ; this is not so now. At some hospitals they use it often early in the disease, for laboured breathing, and always when there is the least cyanosis.

During the past year or so a number of drugs have been tried in pneumonia and discarded ; for example, potassium iodide in ʒi doses a day, and sodium salicylate in large doses reaching half an ounce per day. Creosote and anti-pneumococcus serum have been already referred to.

L. Weber[3] reports certain new and striking results in the treatment of pneumonia with **Carbonate of Creosote** (creosotal), and gives the details of 9 cases treated with uniformly good results (3 private and 6 hospital cases). They included males aged twenty-four, twenty-eight, and two of forty-seven years, and females aged twelve, twenty-one, thirty-two, thirty-four, and forty years. The pneumonia was of the lobar type, and affected one or both bases, but in one or two instances it was diffuse and lobular in distribution. The average dose was 60 grains of the drug per diem, after the administration of which the temperature always subsided and kept low, and the patients also said they felt much better generally. There were never observed any symptoms of gastro-intestinal irritation or depression, and of the 9 patients treated, 8 recovered completely. The ninth also recovered, but died at a later period of cardiac and hepatic complications which had already existed. The author concludes that the remarkable effects obtained were

not attributable to antipyretic or bactericidal properties of the drug, but suggests that the action must be *antidotal* to the toxins of pneumonia. The dietary and nursing was as usual, but directly the patients were treated with the carbonate of creosote improvement began to show itself so strikingly, that all anxiety could be put aside from the prognosis. He claims that we have in creosotal almost a specific remedy for lobar pneumonia.

I. L. Van Zandt[4] also highly commends the use of creosote carbonate. From his own experience, extending through seven years, he concludes that with it a large percentage of pneumonic cases are cut short or aborted ; almost all the rest are mitigated, and the remainder, a very small number, are not at all affected by the remedy. The author prefers the carbonate as the most agreeable form in which to give the remedy. It is almost devoid of taste and odour, and may be given in an emulsion, stirred in hot sweetened water, to be taken during agitation, as it does not dissolve. It should not be combined with alcohol or acids, as these develop the taste and odour of creosote. To an adult $7\frac{1}{2}$ minims may be given every three hours.

Perreau has carried on a series of investigations on the treatment of pneumonia by the method first suggested by Dreyfus Brisac, by **Ipecacuanha.** This method has for its object a depletion of the lung, and, as a consequence, such a modification of its tissues that microbic infection is counteracted. The method consists in giving a sufficient dose of ipecacuanha to obtain a nauseating effect, without inducing serious digestive trouble. Ipecacuanha powder, gr. xv, is diluted in ℥iv of mucilage. A tablespoonful of this is given every hour for about eight hours. The administration of the drug is usually tolerated, but at the same time a certain amount of practice is required, as it is necessary to avoid either vomiting or diarrhœa, which may be accomplished by lengthening the interval between the doses. The effects produced are diminution of dyspnœa and pain, increased and easier expectoration, sputa perceptibly less blood-stained, reduction of temperature, and, lastly, a general improved state of the patient's well-being. The action of ipecacuanha, however, may be harmful in the presence of very marked defect in some part of the digestive tract, or pronounced cardiac disease. The writer gives records of 41 cases in which this method of treatment has been employed, and which showed very satisfactory results, especially in those where it had been employed early in the course of the disease.

REFERENCES.—[1]*Boston Med. and Surg. Jour.*; [2]*Deut. Arch. f. klin. Med.* band lxx, p. 559; [3]*New York Med. Rec.* Nov. 2, 1901; [4]*Southern Pract.*

POLYARTHRITIS (Septic). *R. Hutchison, M.D.*

G. A. Wright[1] understands by this term an affection which, though it may begin in one joint, ends by affecting several; which may give rise to the most complete crippling; which shows no tendency to cause extensive suppuration or even suppuration at all; which may recur or subside completely, leaving a joint intact, and which does not give rise to any nodular bony or cartilaginous outgrowths or to hydrarthrosis. The general health is not gravely impaired, but the skin and nails may apparently be the seat of trophic changes.

He describes three cases of the affection, all in women, and associated in all with leucorrhœa. He believes that in these cases the joint condition is produced by the absorption of one or other of the ordinary septic organisms from an unhealthy area, *e.g.*, the uterus. An analogy is found in the production of gonorrhœal arthritis. Other channels of absorption of infective material which may lead to joint changes are the serous sacs, the conjunctiva, digestive tract, and bladder. Such sources are very apt to be overlooked, but the joint trouble does not get well until the source of infection is treated. As regards the joints, **Rest** and soothing applications at first, with **Massage,** inunction of **Oleate of Mercury,** and a course of **Potass. Iodide** later, are the best measures.

REFERENCE.—[1]*Lancet,* May 17, 1902.

PREGNANCY (Extra-uterine). *Arthur E. Giles, M.D., F.R.C.S.*

ETIOLOGY.—Seligmann[1] is not satisfied with the etiological explanation of extra-uterine pregnancy, as given by Virchow and others, that a previous local pelvic peritonitis, having led to an alteration of the epithelial lining of the tube, and more especially of the cilia of the epithelial cells, is the original cause of the non-passage of the fertilized ovum to the uterus. At all events he believes that a large number of cases must be explained otherwise. He relates four cases to support his view that the condition may be brought on by an accident to the mother, occurring in the early days of pregnancy. It is difficult to form an opinion as to the importance of trauma as a cause of this condition; it is certain that in the great majority of cases no such explanation is forthcoming. Gill Wylie[2] states that

in four cases of sterile women under his treatment in 1900, extra-uterine pregnancy followed dilatation of the uterine cavity, curettage, and prolonged use of the hard rubber drainage tube. In one case tubal pregnancy began three months after conclusion of the treatment, in the others about a year elapsed before rupture of the tube called attention to the abnormal gestation. Here again it is very difficult to distinguish between *post* and *propter*, especially as one of the four patients had been operated upon for a tubal gestation of the opposite side *before* the treatment for sterility. Many more facts are necessary before the cause or causes of extra-uterine pregnancy can be said to be established.

Pathology.—A good instance of ruptured *interstitial* or tubo-uterine pregnancy is reported by Von Guérard.[3] When the abdomen was opened, thirty-six hours after the onset of acute symptoms, the peritoneum contained much blood, and amidst the clots lay a three-months' fœtus. The uterus was markedly retroverted, and the right half of the fundus was occupied by a cavity as big as a small fist ; its wall had ruptured, and the placenta lay in its deeper part. It was an essential feature in this case that the placenta itself was not involved in the laceration. The uterine tissue around the sac was excised by a wedge-shaped incision, the gap being closed by a continuous catgut suture. The right appendages were removed. Recovery was uninterrupted. The right tube was quite intact ; it measured 3 inches in length. The cavity of the sac was completely distinct from that of the uterus, and its walls were made up of pure uterine muscular tissue. The round ligament was attached to the external aspect of the sac. The cavity, as it was found after rupture, measured $2 \times 2\frac{1}{4}$ inches.

Mayo Robson[4] reports a case of *primary ovarian pregnancy*, the true nature of the condition having been confirmed by an examination of the specimen by Shattuck, who says : "At the inner pole of the ovary is a partly collapsed cavity about three-quarters of an inch in diameter. This cavity is widely open through a sharply-defined semicircular rent of recent origin ; in the thin summit of the lid-like portion there is a second narrow, less regular slit half an inch in length. Over the cavity in the ovary lay the lens-like recent clot, which is mounted separately in the preparation. The clot is about an inch and a quarter in diameter and of concavo-convex form ; in its concavity, partly embedded in it and partly free, there lies a villous chorional sac. The sac has been opened in the right half of the clot and the

membranes everted; connected with the everted membranes there is displayed a minute embryo about 4 mm. in length."

Another case of ovarian pregnancy is recorded by Mendes de Leon and Holleman.[5] The Fallopian tube was normal; the ovary presented some small cysts, but was otherwise normal; there was no trace of a corpus luteum. The ovary was closely incorporated with a mass of fibrin and partly organized blood-clot, in which chorionic villi were to be seen. The ovarian character of the pregnancy scarcely seems incontrovertibly established.

Diagnosis.—In the *Medical Annual* for 1902 we laid stress on the importance of distinguishing between an abortion and an extra-uterine pregnancy (See also "Abortion" in the present volume.) There is no doubt that abortion is the most likely thing to be diagnosed in mistake for the more serious condition. We then quoted an instructive article on this subject by Vineberg, who has more recently contributed another suggestive paper[6] on the same topic. He points out how all the usual symptoms and signs of extra-uterine pregnancy may in turn be absent, obscure, or misleading; and he rightly insists on the necessity of regarding with suspicion every case of apparently early abortion, and of making a careful examination under an anæsthetic in every case which does not run a simple course. Grandin[7] writes in the same strain, and goes so far as to affirm that there is only one safe course to follow, *i.e.*, to consider that every suspected case is one of extra-uterine pregnancy until it has been disproved. In the discussion on Grandin's paper, Marx made the very sensible remark that the diagnosis of extra-uterine pregnancy would be made more often if the physician only "thought" of this condition.

Complications.—Septic infection of the gestation sac is a serious but, fortunately, relatively rare complication. An instance is reported by Macnaughton-Jones,[8] in which, despite all treatment, death occurred on the seventh day after operation, from septicæmia.

Treatment.—The question that stands on the threshold of treatment is, Shall we treat expectantly, or operate? Champneys[9] has made a careful and conscientious study of cases as a contribution to this question. From 1865 to 1900, 216 cases of hæmatocele were diagnosed, but not operated upon; of these, 7 died, giving a mortality of 3·25 per cent; in the same period 79 cases of extra-uterine pregnancy are noted, with 12 deaths, giving a mortality of 15·2 per cent. The cases under Champneys'

care numbered 75 ; the fatal cases were 7, or 9·3 per cent ; of these 34 were left alone and recovered, whilst 11 were treated by vaginal incision and drainage, and also recovered. Thus 30 were otherwise treated, and 7 died, giving a mortality of 23·3 per cent. Champneys truly points out that in order to get the best percentages of results from operation the best course will be to operate on all cases ; but this would include, according to his series, 68·3 per cent of unnecessary abdominal sections. Where only necessary operations are done, there will be a preponderance of bad cases, and the percentage of recoveries will be less. Champneys' figures nevertheless suggest the deduction that better results might have followed had the practice been adopted, as is done by some operators, of operating early in all cases where ectopic pregnancy is diagnosed. Among the results of such operators we doubt if the mortality, even of bad cases alone, would amount to 23 per cent ; indeed, in many cases where a series has been recorded it has not been so high as 9·3 per cent, which is the result of all cases, operated upon and otherwise, in this series. It is evident that a surgeon who operates on all cases must operate in many where the operation is really unnecessary ; but it is a question whether it is not worth while to accept this contingency for the probability of saving a few more lives. It is a question that must be decided by everyone for himself. Champneys puts the case for and against operation in a temperate and broad-minded way, and lays down the following principles as being those that actuate him :—

(1,) Cases of early, unruptured, living tubal gestation should be operated upon without delay.

(2,) Cases of rupture into the peritoneal cavity, with diffuse hæmorrhage, should be dealt with according to circumstances : (*a*) If hæmorrhage still continues when they come under observation, some cases ought to be subjected to operation, taking into consideration the probability of the limitation and encapsulation of the blood continuing, and the state of the patient at the time ; (*b*) If seen after hæmorrhage has ceased they should be treated expectantly.

(3,) Cases in which the blood has been encapsulated by adhesions or by the broad ligament should be treated expectantly, and operated upon if the pregnancy appears to be progressing.

(4,) Hæmatoceles which refuse to be absorbed in a reasonable time should be opened, emptied, and drained.

Spinelli[10] admits that a good number of diffuse intra-peritoneal

hæmorrhages do not kill, but end in the formation of a hæmatocele. Unfortunately, prognosis is very uncertain, and any case may end fatally. Spinelli therefore advises an exploratory incision through the vagina, preparations being made in any case for abdominal section. The escape of blood clot and broken-down tissue when Douglas's pouch is opened will confirm the diagnosis of tubal abortion. Then the uterus and tubes can be explored by the finger. The condition of the Fallopian tubes will determine the course of the operator. Should the tube be found ruptured, abdominal section is required ; should there be simple and complete tubal abortion—that is, expulsion of the ovum into the peritoneal cavity, with hæmatocele—Douglas's pouch should simply be drained. When the expulsion is incomplete, or there is a tubal mole, the ovum being retained in the tube, abdominal section and removal of the tube is necessary.

Ihm[11] reports the results, immediate and remote, of 44 cases of ectopic gestation. He found that the average stay in the hospital of patients treated without operation was five weeks. To secure the full absorption of such a hæmorrhage at least six weeks must be required. The bad effects of ectopic gestation persisted for eight or nine months in patients not subjected to operation, and reducing this to the lowest possible point by allowing for other causes of ill-health, it was found that patients not treated by operation suffered for five or seven months from ill-health after leaving the hospital. Cases subjected to operation were able to work in four weeks after leaving the hospital. The expectant treatment had no mortality, which agrees with the statistics of Winkel and Fehling, while Thorn places the mortality of patients not operated upon at 1 per cent.

When the two methods of treatment are compared it is seen that both give good results, but with an enormous difference in the time required for the cure. This consideration is a most important one. Ihm concludes his observations by saying, Shall we, then, advise section in all cases of hæmatocele ? Fehling, Küstner, and Schauta bring the mortality from operation to an average of about 1½ per cent. Thorn believes the mortality of the expectant plan to be 1 per cent.

Repeated Extra-uterine Pregnancy in the same patient.—Cases are reported by Lewers,[12] Kynoch,[13] and Philipowicz.[14]

Combined Extra- and Intra-uterine Pregnancy.—Cases of this rare and usually very puzzling condition have been recently reported by Perkins,[15] Elliot,[16] Kochanoff,[17] and Warrick.[18]

REFERENCES.—[1]*Deut. Med. Woch.* June 27, 1901 ; [2]*Amer. Jour. of Obst.* April, 1902 ; [3]*Monats. f. Geb. u. Gyn.* Oct. 1901 ; [4]*Obst. Trans.* for 1902 ; [5]*Rev. de Gyn. et de Chir. Abd.* May and June, 1902 ; [6]*Jour. Amer. Med. Assoc.* May 11, 1901 ; [7]*New York Acad. of Med.* Oct. 24, 1901 ; [8]*Lancet*, June 20, 1901 ; [9]*Jour. of Obst. and Gyn. of the Brit. Emp.* June, 1902 ; [10]*Arch. Ital. di Ginec.* June, 1901 ; [11]*Zeits. f. Geb. u. Gyn.* vol. xlvi, part 2, 1901 ; [12]*Obst. Trans.* Lond. for 1900, vol. xlii ; [13]*Scot. Med. and Surg. Jour.* Feb. 1902 (Abst. in *Lancet*, March 29, 1902) ; [14]*Wien. klin. Woch.* No. 13, 1902 ; [15]*Boston Med. and Surg. Jour.* March 20, 1902 ; [16]*Med. Rec.* Feb. 22, 1902 ; [17]*Abst. in Cent. f. Gyn.* No. 2, 1902 ; *Brit. Med. Jour. Epit.* Jan. 25, 1902 ; [18]*Ibid.*

PROSTATE, ENLARGED (Radical Cure). *E. Hurry Fenwick, F.R.C.S.*

There is no doubt that a strong reaction has set in, in all surgical centres, against the routine employment of castration and vasectomy for the relief of the symptoms due to the enlarged prostate ("senile type"), and the tendency now is towards radical cure by operative interference. The last three or four years have witnessed a sharp return to the older method (McGill-Belfield) of enucleating the obstructing prostatic outgrowths. There is, however, this difference. Whereas formerly, in pre-castration days, the obstructing lobes only were removed, now the entire content of the prostatic capsule is shelled out. Although this change in technique has been advocated and practised for some years in perineal enucleation (Dittel, Goodfellow, Nicol), it was not clearly enunciated, nor did the plan gain favour, for the profession was occupied with trying the palliative methods of castration and vasectomy. Universal dissatisfaction with these procedures, and the success published by Freyer, to whom great credit is due for demanding a thorough removal of the intracapsular contents, turned the balance sharply in favour of perineal or suprapubic enucleation—two operations which differ only in the route by which the prostatic capsule is reached and opened. But the publicity, the heated discussion, and the personal acrimony infused into this rapid change of surgical front from vasectomy to the removal of the intracapsular contents, has created a very false impression of the true surgery of the prostate. It is surmised by many that all prostatic obstructions can be enucleated, and that this is the panacea for all "prostatics." Far from it ; enucleation only suits a fair proportion of the cases.

Let us review the subject briefly, but before doing so I enter

a strong protest against the loose and unsurgical description of the operation now in fashion.

Is it true that the benign enlarged prostate can be totally extirpated?—It may be argued that it is wise to impress the patient by telling him that his prostate can be "removed with its capsule," "totally extirpated," or "excised"; but surely this inaccuracy is neither befitting the scientific exactness of the surgery of to-day, nor conducive to the sound progress of our art. The "enlarged" prostate is *never* excised. There is no doubt it *can* be, for malignant prostates have been totally extirpated, along with a portion of the bladder and rectal wall, though the operation is not justified by any result as yet obtained; but the enlarged prostate is not, need not, should not be excised, for the danger to life is extremely great in excision, and the severity of the procedure unparalleled in urinary surgery. The enlarged benign prostate, since McGill and Belfield inaugurated its modern surgery, has been *shelled* out of its capsule, like a ripe orange is peeled out of its skin, and the safety and future comfort of the patient depends absolutely upon the surgeon knowing when a prostate is "ripe," and upon his keeping scrupulously *within* the capsule when he is peeling out the degenerated gland. The term "prostatectomy" should be dropped, and some term like "subcapsular enucleation of the prostate" employed. To obtain a clear comprehension of the subject let us divide it into certain heads of cardinal importance.

Is my prostatic patient a suitable case for any radical cure?—If the kidneys are working healthily, and the driving power of the bladder is not absolutely crippled by penetrating cystitis, and if he has sufficient "vim" to undergo a cutting operation of some severity, he is a suitable case. McGill showed in 1889 for the first time that the use of the catheter, *per se*, did not abolish the muscular use of the bladder.

What is the nature of the operation most suitable for the prostate of my patient?—Upon the texture of the prostate all operative interference hinges. This consistence of prostate may be of two kinds: (1) The hard, fibrous prostate; and (2) The soft, elastic prostate.

(1,) The small, hard, tough, fibrous, inelastic, benign prostate denotes an *iron-bound* gland unsuited for suprapubic or perineal enucleation. It signifies a gland, the lobes of which will not shell out, for they retain that intimate connection which exists normally between the glandular tissue and the capsule. They

will not even tear out, though excessive violence be adopted. If pieces are clipped out, every exposed fibre left behind will bleed freely, heal badly, and inflame readily. Permanent benefit will rarely result, for as often as not the suprapubic or perineal incision will remain open, to leak and fret the patient and demonstrate the injudiciousness of the surgeon, whilst, should the wound close, the catheter will still have to be employed.

(2,) The soft, elastic benign prostate is merely prostatic tissue transformed for the most part into fibro-adenomatous masses. As these independent masses slowly increase, they fuse, and by their mere bulk distend the prostatic capsule, sometimes almost to bursting point. That undissectible adherence which exists between the normal glandular tissue and the capsule is loosened, until finally the separation is so complete that the finger of the surgeon can be insinuated between the capsule and the fibro-adenomatous masses, and the entire contents can be gradually shelled out like any other capsulated adenoma, with a slight effort and with but little loss of blood.

How can the difference between these two forms be detected?—There is rarely any difficulty. An examination of the rectal face of the prostate will suffice, *if the bladder be empty at the time.* Let the patient be examined in two positions—first in the knee-elbow position, then lying supine. This will enable the finger to detect finer differences in texture of the prostatic tissue, for in the knee-elbow position the guts crowd down on the prostate, flatten it, and harden it; whilst, when the patient is supine, the gut pressure is removed, the levator ani relaxed, and the prostate is therefore softer and higher up. By this means a fair estimate of the consistence may be acquired.

Is the prostate *small, hardish, and dense,* so that the finger impinging on the lobes feels no "give and take" elasticity? That prostate is unfavourable for enucleation. But the large, resilient, bulging prostate can nearly always be shelled out of its capsule, and the larger the organ is, the easier is the operation. Apparently there is a distinct increase in bulk year by year in these elastic prostates, so that, other things being equal, the very large prostates are met with in the 65-75 decade.

What is the consistence most often met with—hard or soft?—It is extremely difficult to estimate the frequency with which these hard fibrous and the soft elastic types of prostates are met with. I believe that an extended operative experience will settle the proportion. I may say, however, that I have made

1000 models or diagrams of the rectal face of prostates of all ages and diseases during the last fifteen years. In order not to increase the burden of collation I have taken about 170 of those which were enlarged "senile," without selection. Without pretence of strict accuracy they may be thus arranged :—

		Hardish.	soft and elastic
Between Ages	40-50	7	4
,,	50-60	27	21
,,	60-70	42	34
,,	70-80	10	26
		86	85

Without binding myself to these statistics as being correct—for the fallacies of this classification without the actual performance of operative examination are enormous—it would seem

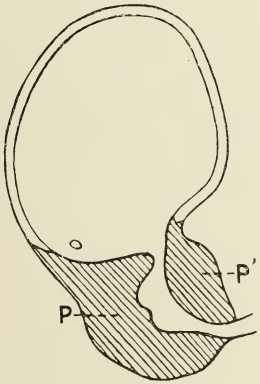


Fig. 61.—The "bar" or "collar" type of enlarged prostate.

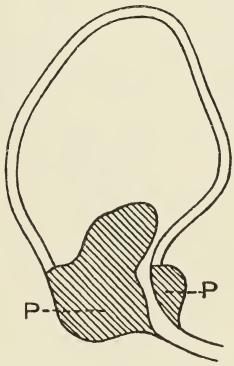


Fig. 62.—A prostate with a medianly placed intra-vesical outgrowth.

that up to the age of sixty the harder types slightly prevail, and over sixty years of age the softer, larger prostates are most often encountered. But, above all, it carries this lesson home, that only a percentage of the prostates one encounters in practice can be shelled out of their capsules.

What parts of these hard and soft prostates produce the obstruction ? In order to estimate wisely the form of operation and the route to be adopted, it is necessary to consider how these two forms of prostates obstruct the urinary outlet. There are three forms which will embrace most of the cases :—

(*A*). In the first (*Fig.* 61) the one and only obstruction is in

the form of a projecting bar or collar at the orifice of the bladder, and in this the prostatic urethra is usually wide. These are usually the small, hard prostates.

(*B*). In the second form (*Fig.* 62) the only obstruction consists in a median lobe which overlies the orifice of the bladder, the prostatic urethra being also wide enough for free urination. This medianly-placed lobe may be tough and fibrous, or soft and adenomatous. It is needless to remark that there is no real median lobe, but that the medianly-placed lobe is usually an outgrowth from one of the lateral lobes, and its consistence and character is the same as that of the lobe from which it is an outgrowth. Hence group (*B*) is intermediate between the hard, tough, small prostates, and the large, elastic, fibro-adenomatous group.

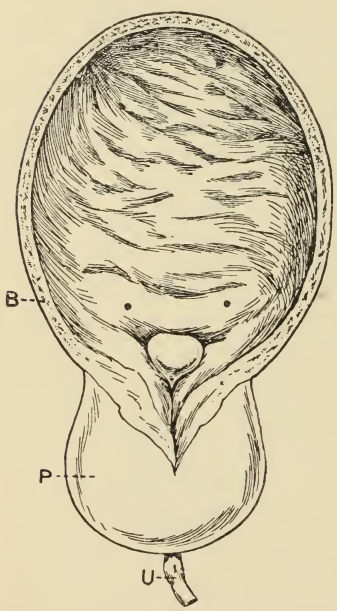


Fig. 63.—Large adenomatous prostate with projecting intravesical lobes.

(*C*). The third form (*Fig.* 63) embraces the adenomatous prostates in which intra-vesical lobes not only project over and obstruct the urethral orifice, but additional tumours also bulge into the urethral canal and render that channel narrow, distorted, and especially difficult to catheterise.

What steps should be taken to ascertain and decide upon an appropriate line of treatment?—(1,) The patient should be prepared with small doses of hexamethylen-tetramine (**Urotropin**).

(2,) The length of the prostatic urethra (the perineal distance of Watson) should be measured, and the amount of residual urine estimated.

(3,) A careful examination of the rectal contour of the gland, and its consistence, should be made digitally and bimanually under chloroform.

(4,) Cystoscopy, if the instrument can be passed without

undue violence, should be carried out in order to demonstrate the presence or absence of a median lobe, to eliminate growth of the bladder, and encysted stone. The form of cystoscope I have used for some years is especially of use in prostatics, as it is shaped like a calculus sound. Its powers are usually restricted to the medium-sized prostates.

(5,) Radiography, if possible, should be used to eliminate deeply-lying post-prostatic or post-trigonal stone in large and irregular prostates. (See *Plate XXXII* and article "Stone.")

An especial Warning.—The clinician must always be on his guard to avoid mistaking a commencing hard carcinoma for a hard fibrous prostate. Hard cancer of the prostate is not so rare as one is led to suppose, and it is most insidious in the onset. Mistakes in diagnosis are easily made in the very earliest periods, and the small area of wooden or stony hardness which is characteristic of cancer is apt to be overlooked, for the early symptoms of hard carcinoma of the prostate exactly resemble those of the benign prostate, and the case is diagnosed and treated, as an ordinary tough enlarged prostate. The stony change often commences in the left lobe of the prostate towards the triangular ligament (*Fig.* 64).

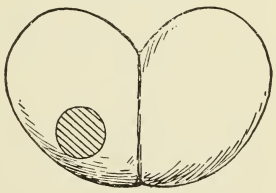


Fig. 64.—Diagram of rectal face of prostate lobes, showing usual position for onset of hard carcinoma of the prostrate.

It can be stated without any fear of contradiction that there is no treatment so disastrous to the patient as perineal section and drainage of a hard carcinomatous prostate. There is no prostatic agony so maddening as that produced by the forcible insertion of the finger and tube along a prostatic channel stiffened by cancerous deposit in one or both lobes.

Operative Treatment.

What radical cure can be obtained for Class A ?

In such a case the usual cause for the obstruction is a dense projecting bar or collar at the orifice of the bladder (*Fig.* 61). Cystoscopy is easy, and it demonstrates the absence of any projecting intra-vesical outgrowth from the prostate. How then to deal with such a case ? The best treatment is **Perineal Prostatotomy,** dealing with the bar as one deals with a stricture of the urethra. These fibrous prostates are often small, or at

most of medium size. The distance from the orifice of the bladder to the perineum is short enough to allow the pulp of the index finger to reach and examine the orifice of the bladder through a perineal incision, and to divide the bar medianly with a blunt-pointed bistoury, or even to clip a piece out of it medianly with blunt ring scissors.

Hence, if a patient between fifty and sixty complains of prostatic symptoms and they necessitate operative relief, other conditions being favourable, and you detect by rectal examination a small or medium-sized prostate which feels dense or tough, the sulcus being a trough or filled up, *and there is no stony area in either lobe*, pass a catheter and estimate the length of the prostatic urethra. Now insert a sound, and, after searching for stone, lay the beak flat and ascertain if a medianly-placed lobe be present, or if the trigone be fairly level. If the cystoscope is available, employ this gently with the same object. If, in such a case, the prostatic urethra be only slightly lengthened, and the trigone level, perform perineal prostatotomy and drain for two weeks.

What can be done for Class B ?

The medianly-placed lobe is seen with the cystoscope or felt with the sound ; the surgeon remembers that it may be either densely fibrous, or a small encapsulated adenoma. Suprapubic incision is probably best in either case, though, of course, if the distance from the orifice of the bladder to the perineum can be compassed by the operator's finger, the perineal incision can be employed. If the medianly-placed lobe be fibrous, it is cut off with curved scissors, and if adenomatous the capsule is incised, and the mass shelled out with the point of the finger.

What radical operation should be employed when the prostate is elastic and adenomatous (Class C) ?—Before discussing this, let me say a word upon the tough capsule of the gland. If frozen sections through the prostate gland are examined—and I have had a hundred cut when frozen—three salient features are noticeable, and these represent factors which play no unimportant part in the surgery of this group :—

(1,) The tough, fibrous prostatic capsule is thick and well developed until it blends with the trigonal tissues. Here it is soft and less fibrous (*Fig.* 65, c). In this fact lies the essential reason for the projection of the adenomatous masses towards the bladder and prostatic urethra. The gradually increasing tension of the gradually increasing bulk of the adenomatous

growth finds relief along the line of the weak resisting trigone and urethral mucous membrane, and projecting masses are therefore found in these situations. Acting on this knowledge, I advocated and carried out some years ago an operation which I called perineal prostatic capsulotomy, the rectal face of the prostatic capsule being incised, to allow of the tension being relieved towards the rectum. Time alone can show whether the procedure is of any value.

(2,) Huge and intricate venous meshes are in and *outside* the prostatic capsule in the older prostates (*Fig.* 65, V); they are

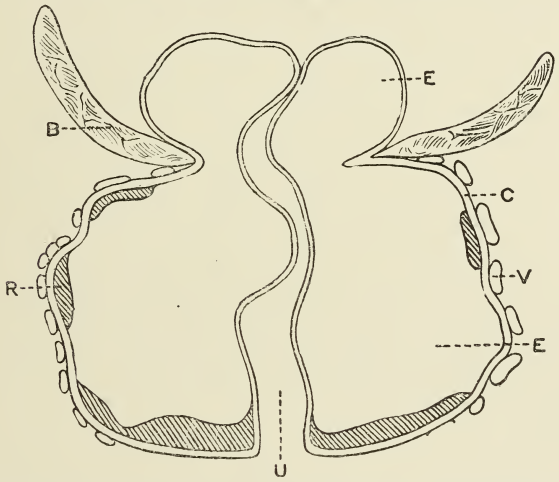


Fig. 65.—Capsular shell after *post mortem* enucleation of an adenomatous prostate—vertical section. B, Bladder base; E, empty shell; C, capsule of prostate; V, venous plexus; R, remains of original prostate atrophied by pressure of adenomata; U, urethra.

intimately attached to it, and they inter-penetrate the outer layers of this coat. It is realized at a glance what a deadly volume of blood would be let loose if the capsule of the gland was perforated in the operation of enucleation. I dissected the venous systems of fifty prostates and bladders, defining and marking each valve in each mesh. I found that the entire plexus was shut off from the pelvo-abdominal venous system by valves, but as age advanced the valves atrophied, the veins became varicosed and phlebolithiform, then blockages ensued, and apparently fresh meshes appeared. The oblique openings of those veins penetrating the outer layers of the capsule became

rectangular, until the prostatic capsule and the peri-prostatic area became one big venous sponge, open to the internal iliac veins, and through them to the entire abdominal venous system. I have had to deal with rupture of the plexus of Santorini behind the pubes, in a young man whose bladder was torn off in fracture of the pelvis. Presumably in this case the valves at the junction of the vesico-prostatic venous plexus and the internal iliacs were healthy, and prevented the abdominal column of venous blood from flowing back; but even then the hæmorrhage was astonishing and alarming, and only checked with great difficulty; and I can see no possible way of saving an old patient from sudden death if the capsule were split and this "venous province *par excellence*," as Luschka calls it, were even slightly opened. Hence in enucleation the finger is kept religiously *inside of the capsule*, and pressure is exerted as much as is possible upon the adenomatous masses to be enucleated.

(3,) Lastly, it will be noticed how densely adherent the prostatic tissue is, in the adult or in the "tough" prostate, to the inside of the prostatic capsule. You cannot dissect it off, because the web and woof of the prostatic tissue is derived from the capsule itself. But if an old adenomatous prostate be taken, it will be seen that the adenomatous growth has altered this intimate relation. What is left of the unchanged prostatic tissue only exists in patches as fine lines next the capsule, and the new material can be shelled out piecemeal or as a whole with ease, and without interfering with the integrity of the capsule (*Fig.* 65).

To return: Supposing the surgeon is confronted with a ripe, elastic, adenomatous prostate, which route is he to follow to enter the capsule of the organ and shell out its entire contents? Practically it does not matter whether you enter the ripe orange from the stalk end or the opposite pole, as long as you select an orange which is "ripe" and get inside the skin. Nor does it perhaps matter as regards the actual performance of prostatic enucleation whether the suprapubic or the perineal incision is followed, provided the contents are shellable, and the work of separation is carried on inside the capsule. The factors which weigh in the choice of the route are these: The perineal route affords the better drainage, the smaller shock, the less discomfort from urinary soakage into the bed, and probably the less operative risk and the less mental depression. The supra-pubic is more adapted for removing very large masses, and for those cases in which

the prostatic obstruction is associated with deep post-prostatic pouches containing calculi. It is, however, a severe operation, and it is apt to unhinge the patient.

My own impression is that the perineal route should be selected for all small or *medium-sized* elastic prostates in *the old and feeble*, especially for those in which very fœtid urine is present. The suprapubic route should be reserved for the extremely large prostates, and even then it should, I submit, be more frequently combined with perineal drainage than it is.

Are there any circumstances which render enucleation more difficult?—I believe the irritation of minute prostatic concretions render the gland less easily shellable and the bleeding a little more pronounced. A previous vasectomy or double castration seems to condense the tissue and render the lobes less easily separable from the capsule. Repeated attacks of painful prostatitis are also indications of some capsular attachment. But the most difficult cases to "shell out" supra-pubically are those which have previously had perineal prostatotomy performed.

Points in technique.—The perineal operation is, I believe the operation of the future. Goodfellow's technique (1892) is the best. A staff is passed, the membranous urethra opened as in median lithotomy, the finger insinuated into the prostatic urethra, and when in that channel it is pressed a little on to one side. The wall of the prostatic urethra gives way before the pressure, if the case is suitable, and the finger travels easily along between the capsule and its fibro-adenomatous contents until the entire lobe is free on its outer surface. Now comes the question, shall the prostatic urethra be left or not? As a general rule it is best removed, especially if there is much adhesion of the channel to the gland. That being so, the finger sweeps across the middle line, peeling the intracapsular contents free as it goes, until the entire glandular contents with its centre channel is free, except at its upper (bladder mouth) and lower (membranous urethral) attachments. With a little stretching the mass is dragged to the perinæal opening and these attachments cut through with scissors. I generally make a transverse skin incision through the perineum to allow of the mass being delivered without stretching or tearing the anal sphincter. In order to pull the prostate down a calculus sound may be used, its beak being used to hook the base down.

Technique of suprapubic enucleation.—There is nothing especial about this operation. The operator has merely to scratch

through the mucous membrane, as McGill showed in 1889, and to keep within the capsule. He will always need an assistant to push up the prostate from the rectum as he shells the entire gland out (*Fig.* 66). The final stage of healing may be diagrammatically represented by *Fig.* 67.

Hæmorrhage.—The bleeding in either operation is often very sharp, and it is almost impossible to pick up any vessel once it has started. It will be found advisable to prepare patients beforehand for two or three days with calcium chloride or cornutin, and to have hot boric acid wash for bladder irrigation

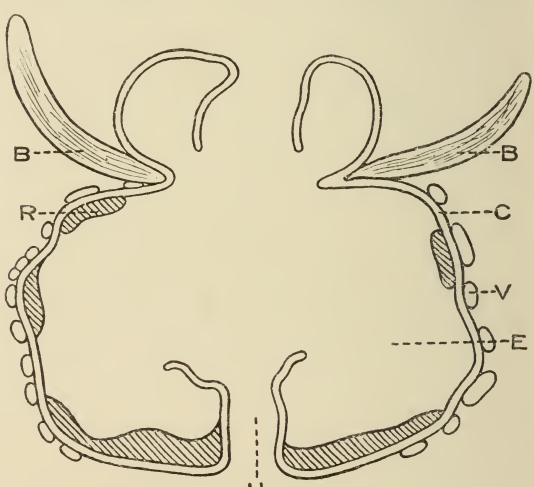


Fig. 66.—Capsular shell after the operative enucleation of an adenomatous prostate—vertical section. B, Bladder base; E, empty capsule; C, capsule of prostate; V, venous plexus; R, remains of original prostate atrophied by pressure of adenomata; U, urethra.

and an ergotin injection for subcutaneous use ready during the operation. I always provide myself with a Fergusson's speculum and a head-lamp, so as to actually see and catch up any troublesome vessel.

After-results.—Generally the patient is able to urinate within three weeks, and the catheter is usually dispensed with. Patients who have used the catheter for years are freed from it, provided there has been no crippling cystitis to render the bladder muscle hopelessly inactive. But there are three contingencies upon which no surgeon should commit himself :—

(1,) The operation does not prevent recurrent attacks of cystitis.

(2,) The operation may *diminish* the chance of recurring calculous formation, but it does not purchase immunity from stone.

(3,) There is always the chance of a very *dense* stricture forming where the urethra is divided transversely.

Shall enucleation precede catheter life?—Is it not better for a patient with marked symptoms of benign prostatic enlargement of the adenomatous type to have the operation performed whilst the urine is sterile, and before the catheter has been used? This, to my mind, is the true surgery. There is no doubt the employment of the catheter is the first step downwards; it is the commencement of a series of septic difficulties, against which the patient and the practitioner struggle ineffectually. Moreover, these prostatic adenomata grow perceptibly year by year. It may be that the practitioner will in years to come consider, as he does now of a large stone in the bladder, that a very large prostate carries some blame with it.

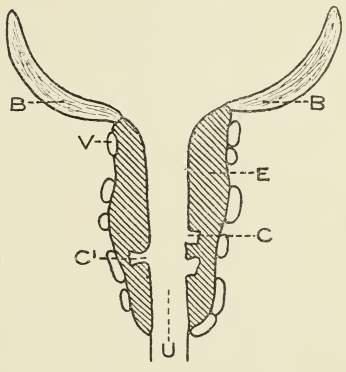


Fig. 67.—The closing in of the empty capsule, and coalescence of the remains of the upper and lower ends of the severed prostatic urethra. B, Bladder base; V, venous plexus; U, urethra; c c¹, torn ends of urethra.

But there is a stronger reason for early interference. Some years ago, when Sir H. Thompson wrote his article on carcinoma of the prostate, twelve cases were collected with difficulty. The present writer has notes of over seventy, and it is abundantly evident that this disease is becoming commoner instead of rarer. And there is some reason to suspect that this increase is due to malignant change appearing in the enlarged benign prostate. This argument carries some weight in advocating earlier operation.

PRURITUS. *Norman Walker, M.D.*

Hartzell[1] says, in the treatment of itching the first thing to be done is to find the cause and remove it; if that can be done the itching will disappear. Unfortunately the cause often eludes one. He mentions coffee, tobacco, and other drugs as

sometimes responsible for pruritus, and the fact should be borne in mind. Of internal remedies, **Bromide of Potassium,** of which large doses are required ; **Cannabis Indica,** 10 to 30 minims of the tincture ; **Tincture of Gelsemium** in 10-minim doses every half hour ; 5 to 20 minims three times a day of the fluid extract of **Jaborandi** ; **Acetanilid** and **Phenacetin,** are all worth a trial. **Salol** is especially indicated in those cases where there is decomposition in the gastro-intestinal tract. Opium he says is directly contra-indicated.

Of external remedies, on which he says the chief reliance is to be placed, there are many. Bathing with very hot water is an old remedy in local pruritus. Cold cream or oil of sweet almonds is often sufficient to afford relief, but no local remedy is so generally useful as **Carbolic Acid.** As a lotion he prescribes carbolic acid, glycerin, and aqua camphoræ. If the pruritic area is small, a paste may be used :—

℞ Pulv. Amyli.		Carbolic Acid	grs. 10-15
Bismuth Subnit.	āā ʒij	Vaseline	ʒss

Menthol comes next to carbolic acid ; it may be used in paste or a soap, but should not be too strong, or it is apt to produce burning, after the characteristic sensation of coolness has passed off. It should not as a rule be applied to the face, because of its irritant vapour. **Resorcin,** especially combined with a half per cent of salt, is useful, while **Thymol** is sometimes of value. **Tar** he admits the value of, but seems to be more than needfully impressed by its slight disadvantages of smell and colour.

The terms of pruritus ani and pruritus vulvæ are generally misapplied, as there is almost invariably some obvious disease present. There is, however, no doubt about the pruritus, and he recommends the application of **Nitrate of Silver** 10 to 60 grains to an ounce of sweet spirits of nitre. He mentions that **Compound Tincture of Benzoin,** recommended by Reeves and Crocker, is sometimes of extreme value in these cases.

Leo[2] has noted that the subjects of pruritus often have alkaline urine ; he therefore administers to them small doses of dilute **Sulphuric Acid,** and claims to have cured several cases by this means.

For *senile pruritus* Parisot[3] recommends 2 grains of **Benzonaphthol** daily.

Pruritus ani.—Sir William Banks,[5] in an address to the Harveian Society on the neglect of the actual cautery in surgery, referred *inter alia* to pruritus ani. He notes that the trouble

is almost limited to the better classes, that many cases fall under Simpson's third division of "idiopathic: pathology unknown," and that greasy applications never do any good. In the obstinate cases where no simple remedy has proved of value he applies the actual **Cautery.** The patient is put, under chloroform, in the lithotomy position, and the skin for an inch and a half around the anal orifice is well frizzled. There is no doubt that the method is more than justified by its results and by the obstinacy of many cases.

Adler[6] recognizes the importance of examination for any disease. If the skin is harsh and dry he applies a strong solution of **Silver Nitrate,** which he thinks is not so painful as a weak solution. After the application of the silver he applies **Citrine** or **Nitrate of Mercury** ointment; over this is placed a pad of cotton wool and a T-bandage. Should the itching be very severe, very hot water may be applied; it should be followed by the application of **Black Wash** or of **Calomel Ointment.** He claims never to have failed to have cured this distressing condition by this means. [We would not advise others to expect a similar invariable success.]

REFERENCES.—[1]*Therap. Gaz.* Feb. 1902; [2]*Bull. Med.* Sept. 4, 1901; [3]*Med. Rec.* Jan. 15, 1902; [4]*Cent. f. innere Med.* No. 48, 1900; [5]*Brit. Med. Jour.* March 9, 1901; [6]*Phil. Med. Jour.* May 12, 1900.

PRURITUS VULVÆ. *Arthur E. Giles, M.D., B.Sc., F.R.C.S.*

The treatment of this distressing condition is often very difficult, as shown by the great number of remedies advocated from time to time. Leredde[1] has tried **Electrical Currents** of high frequency, which he found successful in four cases that had resisted all other known remedies. In each case from six to thirteen applications had been required, two or three in a week, the duration of each sitting being gradually prolonged to fifteen minutes. "Lichenification" appears to be an obstacle to the efficiency of this treatment.

Resection of the Internal Pudic Nerve, which was recommended by Simpson in 1861, has lately been performed by Tavel[2] with very good results in two cases of vaginismus and pruritus. He employed a sagittal incision—from 8 to 10 cms. in length—which passes from before backward across the ischio-rectal fossa, midway between the anus and the ischial tuberosity. The anus lies opposite the middle of the incision. After dividing the integument, the dissection is made toward the inner aspect

of the ischium, care being taken not to damage the inferior hæmorrhoidal nerve. On passing the finger over the fascia which covers the obturator internus, the internal pudic artery can be felt pulsating as it passes through Alcock's canal. The inner layer of the fascia forming the canal is divided, and the nerve isolated from the vessels. The inferior hæmorrhoidal and the anal branch of the deep perinæal are hooked back and the muscular branches isolated. They are recognized by the fact that, when they are pinched, the muscles contract. The branches which supply the muscles implicated are divided and avulsed after the method of Thiersch. The wound is closed without drainage.

Sieburg[3] goes fully into the treatment of pruritus. He recommends daily exercise, enough to induce a sense of fatigue and need for sleep. Morning and evening the patient should wash for about five minutes with soap and cold water, and through the day after each evacuation of the bladder. Carbolic washing is useful. An ointment is also recommended, composed as follows :—

℞ Cocaine	2·0	Carbolic Acid	1.0
Orthoform	1·5	Vaseline	20.0
Menthol	0·5		

To be used whether there is abrasion of the mucous surface or not. Patients should always have the ointment at hand, so that they may never be driven to relief by scratching. The fissures are best treated by painting with a 10 per cent solution of **Silver Nitrate,** after which they heal rapidly. In the evening a strip of gauze, spread with the above ointment, is placed over the affected parts, and over this a thick pad of wadding, kept in position by a T-bandage. The pressure gives relief, and the patient cannot well get under the parts to scratch. If the disease has become chronic and the skin is intact, he uses the following mixture : Sp. rusci 50·0, acid salicyl. 0·5, resorcin 1·0, painted on after the usual washings. Along with the above he has also used subcutaneous injections, first of all with weak solutions of **Cocaine and Carbolic Acid:** the effect is due not so much to any particular drug as to the quantity of fluid injected, and he now injects up to a third of a litre of physiological solution.

In cases of *senile pruritus* Jaeneche[4] suggests a treatment which, though not curative, gives so much relief that the patients consider themselves cured. He noted that the regions affected were dry and glazed and ill-nourished, and that on brushing the

skin a great quantity of dead and degenerated epithelial cells could be collected. His treatment consists in regular **Brushing** with a soft brush, which removes the degenerated superficial epithelial cells, increases the nutrition of the part, and brings about so much relief that the patients may go for days or even weeks with perfect comfort. The brushing is repeated at first three times daily for from ten to twenty minutes. These treatments are reduced to twice a day, and finally once every second day ; a longer interval than this should not be allowed to elapse. There is often no improvement for days, nor is there any marked alteration in the nutrition of the skin. But shortly the patient experiences marked relief, and in many cases is entirely freed from her suffering. It is important that no water should come in contact with the affected regions, since this, though it is followed by a temporary alleviation, renders the treatment by brushing quite futile.

REFERENCES.—[1]*Indépend. Méd.* Oct. 16, 1901 ; [2]*Rev. de Chir.* Feb. 1902 ; [3]*Cent. f. Gyn.* Oct. 26, 1901 ; [4]*Centralbl. f. innere. Med.* No. 48, 1900.

PSORIASIS. *Norman Walker, M.D.*

Charmeil,[1] in a lecture on the treatment of psoriasis, reviews most of the modern methods. As to hygiene and diet, he thinks that meat should be limited to once a day. In the severe cases **Vegetarianism** is desirable. Fermented foods, strong cheese, and alcohol in every form should be prohibited. Lithia or some other alkali is often useful. Regular exercise and frequent baths are to be recommended. Internally the remedies he refers to are **Arsenic, Iodide of Potassium, Mercury,** and **Thyroid** substance. Of the first it is necessary to give large doses, but these should be gradually approached. He refers to the cacodylates, but offers no opinion as to their value. He says a good word for Bourboule water, which contains 28 milligrms. of the arseniate of soda in each bottle. The results of arsenical medication are often unsatisfactory ; it seems as if it would not act without seriously disturbing the organism ; and it is well known that psoriasis may disappear, and other forms of disturbance take its place. Iodide of potassium is indicated where the psoriasis is combined with *arthropathy,* but this is exceptional. The tolerance of the enormous doses required is rare ; but it is occasionally useful. Mercury is often useful, especially in rebellious cases, and is best given by subcutaneous injection. Thyroid he admits is occasionally successful, but he is so

impressed with its dangers as to adopt Thibierge's description of it as a "desperate remedy." In all internal methods it is sometimes not possible to get any good results except at the expense of a disturbance of the general health.

External treatment should begin with **Baths,** preferably alkaline, and they should be repeated frequently. Although psoriasis as a rule stands remedies well, the possibility of individual intolerance should always be kept in mind, and weak applications should be used at first. Simple **Grease** is often useful, and many old psoriatics use nothing else. **Tar and Glycerine** is a useful application, as its widespread use shows. **Pyrogallic Acid,** 5 or 10 per cent, has many advantages. It is inodorous ; it can be applied to large surfaces, but not without some risk of absorption, the indications of which, however, in darkening of the urine, are readily observed. **Chrysophanic Acid,** like everyone else, he has found useful. Of course it is the most active remedy. He concludes with a shot-gun prescription, in which at least some of the ingredients should do good :—

℞ Vaseline	grms. 100	Ichthyol	grms. 2
Pyrogallic Acid	grms. 2	Naphthol	grms. 2
Chrysophanic Acid	grms. 2	Salicylic Acid	grms. 2

Blaschko[2] recommends a forgotten ointment which he has more than once found preferable to chrysarobin. The formula is : **Iodine,** 6 parts ; **Calomel,** 1·8 ; **Vaseline,** to 100. They are mixed with slow heat. It sometimes causes irritation, but in many cases the eruption disappears slowly without any. The ointment goes by the name of Richard's ointment.

References.—[1]*L'Echo Méd. du Nord,* Feb. 9, 1902 ; [2]*Derm. Zeit.* vol. viii, p. 3.

PUERPERAL ECLAMPSIA. *Arthur E. Giles, M.D., F.R.C.S.*

Since our last *resumé* on this subject (see *Medical Annual* for 1902, p. 492) no really fresh light has been thrown on the etiology of eclampsia. The prevalent theory is no doubt the toxæmic one ; but whether there be any specific toxin concerned, and, if so, what its nature is, must remain unsolved until, as Berry Hart[1] says, the clinicians can enlist the help of the skilled pathological chemist in the investigation, at the bedside, of the blood and excretion of the patient affected with eclampsism or eclampsia. A remarkable case is recorded by Gregory[2] in which the patient had two prolonged periods of coma, lasting respectively 108 hours and 69 hours, and yet recovered. Induction of labour failed to cause improvement in the symptoms.

The treatment consisted mainly in the administration of **Chloral Hydrate** and **Potassium Bromide** by the rectum, whilst **Calomel** (6 grains) was dropped on the tongue daily.

Treatment.—The literature of the subject shows, as in previous years, a bewildering array of methods of treatment, including rapid delivery, chloroform, chloral hydrate, morphia, veratrum, saline transfusion, venesection, and inhalation of oxygen. Each method can boast that it was followed by a certain number of cures. Perhaps the most important contribution to the subject within the last year is that of Herman,[3] who has addressed himself chiefly to the question, "What is the effect of emptying the uterus in elcampsia? Will it stop the fits? Does it do good?" Herman adduces abundant evidence that the statement as found in text-books, to the effect that emptying the uterus will at once stop the convulsions, is incorrect. He has collected the statistics of a large number of writers, and gives the results in the following table :—

Table showing the Effect of Delivery on the Fits.

Authority.	Number of cases.	Fits ceased after delivery.	Fits continued after delivery.
Schauta	185	62	123
Brummerstadt	63	18	45
Schreiber	105	63	42
Lantos	44	32	12
Goldberg	81	19	8
Bidder	455	108 (33%)	—
,, (forceps cases)	—	66	40
Dührssen	200	65	53
Zweifel	129	55%	45%
Glockner	141	48 (34%)	93 (66%)
Olshausen	143	92	51
Wieger	111	39	72
Auvard	179	60	119
Goedecke	268	160	108
Herman	38	18	5

If we omit Bidder's cases (including, however, the forceps cases) in which precise figures are not given as to the number in which fits continued after delivery, we have here altogether a record of 1642 cases; fits ceased after delivery in 813 cases, or 49·5 per cent; and continued after delivery in 829 cases,

or 50·5 per cent. Herman's contention is therefore clearly established. He goes on to say: "It may be said, even if the contention that after delivery the fits at once cease, be given up, yet it is the fact that speedy delivery is good treatment; that cases treated by accelerating delivery do better than those in which labour is allowed to take its natural course." Examining this point, he collects statistics from various writers to show the mortality of cases where natural delivery occurred, as compared with the mortality when delivery was accelerated, and gives his results in the following table:—

Authority.	Natural delivery.	Accelerated delivery.
Goldberg	16·28 per cent.	34·21 per cent.
Dührssen	21·0 ,,	23·75 ,,
Lantos	18·0 ,,	33·0 ,,
Schreiber	20·3 ,,	19·23 ,,
Glockner	20·0 ,,	17·5 ,,
Olshausen	21·6 ,,	20·8 ,,
Schauta	26·0 ,,	43·0 ,,
G. Veit	20·0 ,,	25·5 ,,

His inference from these facts is as follows: "I submit that immediate delivery is *not* the first thing in treatment; that if it is beneficial, the benefit is of the most trifling kind, so small as to be doubtful. The practice is one based upon theory, not upon experience. The advantage is so small that if hurried delivery were indiscriminately practised by all who attend labour, in all circumstances, the mortality arising from operative delivery would soon over-balance the trifling and doubtful benefit of emptying the uterus. I therefore think that the teaching that to empty the uterus quickly is the first thing in treatment is bad, because likely to lead to bad results."

Berry Hart (*op. cit.*) and Lapthorn Smith[4] come to the same conclusion.

Herman speaks favourably of the results of a **Warm or Tepid Bath** in cases in which patients have a very high temperature and a very quick pulse.

References.—[1]*Pract.* Dec. 1901; [2]*Brit. Med. Jour.* May 17, 1902; [3]*Lancet*, April 26, 1902; [4]*Montreal Med. Jour.* Jan. 1902.

PUERPERAL FEVER. *Arthur E. Giles, M.D., B.Sc., F.R.C.S.*

Etiology.—A detailed review of the causes of puerperal fever is given by Hegar.[1] He describes in detail all the factors which lead to the development of the infection, and pays particular attention to the want of free drainage for the lochia, which is so frequently met with. Obstruction by retained portions of membrane or placenta, or by blood clots, or reflex contractions of the sphincter vaginæ, is responsible for this deficiency at times, but he believes that sutured tears of the perinæum, when the suture includes but little more than the skin, while the rupture extends high up into the pelvic floor, and thus a blind space is formed in which the fluids stagnate, are most frequently the starting point of the coccus infection.

Clifton Edgar[2] distinguishes between septic and non-septic fever in the puerperium. He gives an analysis of 2200 cases of labour. A rise of temperature to 100·5° F., or over, occurred in 405 cases, or 18·4 per cent. In 204 of these cases the fever had lasted only a few hours, and in only 72 had it continued for more than three days. Of the non-septic cases of fever, the elevation of temperature had apparently been due to constipation in 259 cases, or 63·95 per cent ; to reflex irritation in 142 cases, or 10 per cent ; to complicating disease in 20 cases, or 4 per cent ; to neurotic conditions in 1 case, or ·24 per cent. He looked upon 55 cases of fever, or 12·58 per cent, as of septic origin, while in 25, or 6·91 per cent, no cause could be assigned. A common source of reflex irritation was the pain resulting from the distension of the breasts with milk in primiparæ.

Ethel Williams[3] records two cases of pyrexia of gastro-intestinal origin during the puerperium, and Steiner[4] relates one where temperature was evidently due to constipation. The occurrence of these non-septic cases has to be borne in mind. Sommel[5] reports a fatal case in which a positive Widal reaction was obtained ; at the autopsy no typhoid lesions were found, but the uterus was in a state of septic inflammation.

In view of the fact that retention of secundines is a not infrequent cause of puerperal sepsis, a case recorded by Tissier[6] is of interest. The patient aborted in the third month, and the placenta was retained for ten weeks. The patient suffered from floodings ; but throughout there was no rise of temperature, and there was no sign of infection. Such a case is, of course, quite exceptional.

Treatment.—This matter is clearly in an unsettled state,

as all sorts of procedures are advocated, from medicinal treatment on the one hand, to hysterectomy on the other. Aufrecht[7] advocates **Irrigation** of the uterine cavity with carbolic acid (1 in 40) at a temperature of 82° to 86° F., and subcutaneous injections of **Quinine** (7½ grains in a 3 per cent solution) once a day for three consecutive days. Steiner (*op. cit.*) mainly advocates **Quinine, Opium,** and **Icebags** as routine treatment, with **Intra-uterine Injections** when required. Solt[8] warmly recommends the use of **Ergotin,** both as a prophylactic and as a specific. In seven years he has treated 30 cases of puerperal fever with ergotin, giving it all through the illness ; all the cases recovered with a rapidity he had never before observed. Burzi[9] relates two cases in which decided improvement was brought about, on the third and fourth day respectively, by **Injections of Perchloride of Mercury** (1/100 grain) made twice a day into the gluteal muscles. Intra-uterine irrigations were also carried out. Hegar (*op. cit.*) is a great advocate of intra-uterine **Douching** and drainage. The former he carries out at least once every hour, and sometimes three times, using **Chlorine Water,** diluted with from 3 to 7 parts of sterile water. Higgins[10] speaks highly of intra-uterine irrigation with weak solutions of **Formalin,** ½ to 1 per cent.

Treatment with **Antistreptococcus Serum** has not been heard of very much of late ; Wilson,[11] however, records a case in which he believes that the patient's life was saved thereby. Higgins used it in five cases, one of which recovered. He states that its effects on the patient are very depressing, its use is not without danger, and it should be used with great care, in moderate doses, and then only in the most serious cases. Marx[12] stated that the first 25 cases in which he had used Marmorek's antistreptococcus serum had all terminated fatally, and he had been informed that this serum deteriorates rapidly, and that then it is probable that it actually aggravates the patient's condition. More recently he had been using serum supplied by various American manufacturers, and had secured several apparently brilliant results. He now believed there was a distinct field for the administration of the antistreptococcus serum. He had made use of 10 c.c. of the serum every three hours.

Curettage of the puerperal uterus for sepsis is advocated by Higgins (*op. cit.*), and it is largely practised. Pryor[13] considers that it is only admissible in saprophytic infection ; in the true septic infection he regards it as an inexcusable procedure, and believes that it adds largely to the mortality.

Lastly, **Hysterectomy** is still enthusiastically advocated by Vineberg,[14] who contends that when a case of uterine sepsis progresses unfavourably after curetting, irrigation, and proper general treatment, as evidenced by the pulse, the temperature, and the condition of the uterus, we are justified in opening the abdomen and removing the uterus, unless, after opening the abdomen, we find some condition outside of the uterus to account for the persistence of the sepsis, or unless we find some condition in the uterus itself, as a single intramural abscess or a localized gangrene, which would permit of removal without ablation of the whole organ. When a uterine infection extends to a tube or ovary, setting up a violent grade of salpingitis or ovarian abscess, the abdomen should be opened without delay and the affected tube or ovary removed. When a uterine infection sets up a septic inflammation of the peritoneum, the abdomen should be opened and the uterus ablated, the peritoneal cavity flushed with saline solution, and free drainage employed through the vaginal opening. He adds, however, that to operate for these conditions when the patient is evidently moribund is unjustifiable, and can serve only to bring discredit upon the profession and upon the operation.

Murray[15] also thinks that many cases would be saved if hysterectomy were done. Garrigues,[16] on the other hand, does not think that hysterectomy is indicated in puerperal sepsis.

References.—[1]*Münch. Med. Woch.* Sept. 17, 1901 ; [2]*Med. Rec.* Dec. 14, 1901 ; [3]*Lancet*, April 19, 1902 ; [4]*Die Heilkünde*, Jan. 1901 ; [5]Abst. in *Med. Rec.* March 29, 1902 ; [6]*Bull. de la Soc. and Obst. de Paris*, Feb. 20, 1902 ; [7]*Therap. Monats.* No. 5, 1901 ; [8]Abst. in *Med. Press*, May 21, 1902 ; [9]*Gaz. deg. Osped.* March 16, 1902 ; [10]Reports of Boston City Hosp., 1901, in *Therap. Gaz.* March 13, 1902 ; [11]*Brit. Med. Jour.* May 17, 1902 ; [12]*Med. Rec.* Dec. 14, 1901 ; [13]*New York Med. Jour.* Jan. 25, 1902 ; [14]*Ibid*, April 12, 1902 ; [15]*Med. Rec.* Dec. 14, 1901 ; [16]*Ibid*.

PUERPERAL INSANITY.

James Shaw, M.D.

Diagnosis.—Dr. R. Jones[1] says the progress of a case is thus described : First, sleeplessness, then a feverish and anxious restlessness, a busy concern about trivial details, distrust, suspiciousness, loss of appetite, readiness to take offence when none is meant, an exacting irritability and ready reaction to outward stimuli, culminating in wild delirious excitement and mania. Early attention should be given to sleeplessness and

headache in puerperal women, especially if they are the subjects of hereditary nervous instability.

TREATMENT.—Dr. Mongeri[2] in a case of acute delirium after post partum hæmorrhage, with a temperature of 38.5° C., tried injections of **Antistreptococcus Serum.** After the first injection of 10 c.m. the temperature became normal, and after the third the delirium ceased. Dr. Louis Vintras[3] states that in two cases of puerperal mania 1-grain doses of **Quinine** every two hours have brought about rapid and marked amelioration.

REFERENCES.—[1]*Brit. Med. Jour.* March 8, 1902; [2]*Allg. Zeit. f. Psychiat.* see *Jour. Ment. Sci.* Oct. 1901; [3]*Med. Times and Hosp. Gaz.* Sept. 27, 1902.

PURPURA. *Norman Walker, M.D.*

Hirtz[1] records the case of a girl, perfectly healthy, who went into service in Paris, where she had to dress the suppurating leg of her mistress. Her health failed. There was severe anæmia and all the symptoms of typhoid. The urine contained albumin, and the temperature reached as high as 40·2. A few days later hæmorrhages appeared profusely on the arms, and the case ultimately terminated fatally. At the autopsy several of the internal organs showed hæmorrhages, but, notably, the spleen was almost normal and showed none. The stomach was covered with petechiæ, and the intestines showed numerous ecchymoses. Peyer's patches were normal. In view of all the facts a diagnosis was arrived at of infective purpura. *Apropos* of the case, he discusses the forms of acute purpura, Henoch's, the acute typhoid-like form, and a subacute form, where the lesions are not so numerous. Convalescence is prolonged, and anæmia persists for months.

He discusses the treatment, and lays stress on attending to the several conditions. He advises **Baths** if the temperature rises. He mentions the injection of **Spartein** and **Strychnine** to control the tendency to hæmorrhage, and also that the injection of **Gelatinised Serum** might be tried; also **Sulphate of Sodium, Chloride of Calcium**, and **Cacodylate of Sodium.** If the case is improving, **Iron**, especially the proto-oxalate of iron, should be administered. When there are considerable hæmorrhages one can administer **Ergotin** "without being under any illusions as to its action," while perchloride of iron has sometimes been followed by good results. "One must admit, however, that the therapeutics of severe infective purpura are non-existent."

Buckley[2] reports a case of purpura in a patient with diphtheria. The first symptom of hæmorrhage was hæmatemesis, and the skin lesions appeared later. As usual in children, they appeared all over the body. The lesions on the elbows became vesicular and bullous. The possibility of the eruption being due to antitoxin is discussed and dismissed. He inclines to regard it as a case of Henoch's purpura. There was no history of rheumatism.

Goodall[3] reports a case somewhat similar, where the lesions were most common about the elbows; they did not become vesicular; on the other hand, there were among them lesions of circinate erythema. Five grains of **Calcium Chloride** were given every four hours, but Goodall does not seem to claim that the recovery was in any way due to that.

Carriere[4] reports the isolation from a typical case of purpura simplex of a bacillus apparently identical with that found by some observers in *acute rheumatism*. One of the guinea-pigs inoculated died on the sixth day, and from the blood-stained peritoneal fluid the organisms were re-obtained.

Lusignoli[5] treated a case of purpura hæmorrhagica with success by the intravenous injection of solution of **Perchloride of Mercury**; from 1 to 4 milligrms. being given daily. He believes the disease may be caused by various pyogenic bacteria, and that all the various purpuras are different forms of the same disease.

Stengel[6] reports a case of purpura following on the administration of *iodide of potassium*. The patient had suffered from asthma for five years. The initial dose was 5 grains three times a day, subsequently raised to 8. The eruption appeared a month subsequently, and the gums became spongy. After four days the iodide was stopped and the eruption immediately began to improve. A second case showed elevation of temperature without hæmorrhage, but with tenderness of the gums. The fact that hæmorrhages do occasionally arise from the administration of iodides has long been known, but it is well that it should be kept in mind by the record of cases, for if the drug is continued the patient sometimes gets into a serious condition.

REFERENCES.—[1]*Gaz. des Hôp.* Feb. 11, 1902; [2]*Lancet*, July 20, 1901; [3]*Ibid*, Nov. 30, 1901; [4]*Arch. de Méd. Exper.* March, 1901; [5]*Arch. Gen. de Méd.* Jan. 1901; [6]*Therap. Gaz.* Jan. 15, 1902.

RAYNAUD'S DISEASE.

Graeme M. Hammond, M.D., New York.

Cushing[1] presents a very interesting article on the treatment of this disease by means of the **Tourniquet,** which was applied to counteract the vaso-motor spasm due to the over-excitability of the vaso-motor centres. He considers that the same fundamental condition, whatever it may be, is responsible—through variations in the intensity of its action—for the three well-known gradations in severity of symptoms : (1) The "local syncope" with exsanguinated tissues ; (2) The local "asphyxia" from venous stasis ; and (3) The thrombosis and gangrene, representing the terminal feature of the vascular spasm in case the latter is sufficiently severe or prolonged in its action.

The suggestion that the application of a tourniquet to an extremity early in the course of a period of arterial spasm might temporarily throw out of action the nerves controlling the peripheral vaso-motor mechanism, and thus interrupt the syncopal attack, was based purely on the theory that the cause of Raynaud's disease was due to the physiological over-action of the neuro-vascular apparatus. The removal of a tourniquet which has been applied to an extremity for operative purposes is invariably followed by a flushing of the member, peripheral to the site of constriction, with bright arterial blood. This active hyperæmia, with increased surface temperature, presumably is due to the temporary paralysis of vaso-motor control to the part below the encircling bandage. This naturally suggested the employment of a similar procedure as a therapeutic measure to counteract the local conditions of spasm characterizing the disease in question. In the particular patient in whom the treatment was first instituted the symptoms were severe, the arterial spasm was pronounced, and was associated with great pain. For several months a condition of local asphyxia of all the digits had been present, with exacerbation of almost daily occurrence. On several occasions these attacks were so severe that slight superficial patches of terminal gangrene had affected the pads on one or more of the toes and fingers. The healing after this loss of substance had left most of the finger-tips tapering and firm. The arterial spasm extended far enough up the extremity to render the radial artery at times unpalpable at the wrist. During an exacerbation of pain and asphyxia chiefly affecting the left upper extremity, the flat rubber bandage was first employed as a tourniquet about the upper arm. Its

application occasioned considerable local discomfort, and pain referred to the side of the thorax. On its removal after one or two minutes' application a bright flush of the extremity followed, with increase of surface temperature and a much more readily palpable radial artery. The vaso-motor relaxation lasted only a short time, but gave considerable relief. The tourniquet was applied daily to one or another member as the symptoms indicated, and the length of time was finally extended to periods of five minutes or longer. Improvement in the circulation was noticed from the very first, and finally the patient completely recovered.

REFERENCE.—[1] *Jour. Nerv. and Ment. Dis.* Nov. 1902.

RECTUM. (See also "Anus.") *Herbert W. Allingham, F.R.C.S.*

Swinford Edwards[1] staunchly upholds the advantage of the proctoscope in the diagnosis of all diseases involving the mucous membrane of the rectum or sigmoid flexure. The instrument consists of metal tubes of different sizes fitted with obturators. It may be used without the aid of anæsthesia.

Internal Hæmorrhoids.—W. Duff Ballard,[2] of New York, discusses the various forms of treatment possible, and decides in favour of clamp and cautery. In America this operation seems to hold a more favourable position as compared to the ligature than it does in England, where the operation by ligature is held to have fully justified its claims to be reckoned the best operation for most cases of internal piles. Dr. Ballard writes at great length to dispose of the operation by injection, a method which may in England be regarded as obsolete. Yet Gay, in the Surgical Reports of the Boston City Hospital,[3] advocated the use of carbolic injection in many cases of internal piles.

Carcinoma of Rectum.—A careful article upon the results of colotomy is published by F. V. Milward.[4] The opinions are based on only 100 cases, including some of six years ago, when the operation of colotomy was not so well nor so easily performed as it now is. The somewhat gloomy conclusions that Milward arrives at need therefore hardly be accepted as quite representing the typical result of colotomy at the present time. Only three out of seventeen cases survived more than twelve months. The article contains useful facts and deliberate opinions, and merits perusal.

REFERENCES.—[1] *Brit. Med. Jour.* July 19, 1902; [2] *Med. Rec.* March 29, 1902; [3] *Therap. Gaz.* April, 1902; [4] *Birm. Med. Rev.* May, 1902.

RETINA (Diseases of). *E. H. Holthouse, M.B., F.R.C.S.*

Obstruction of the central artery.—The appearances presented by obstruction of the central artery have been familiar to all ophthalmic surgeons since they were first described by Graefe in 1859. For a long time they were attributed to embolism only, but in recent years other causes have been suggested to account for them. A careful summary of the present state of our knowledge on the subject has been compiled by A. H. Thompson.[1] The conditions which have been supposed to give rise to the ophthalmoscopic picture are classified by him under the following heads :—

(1,) *Embolism.*—The trunk of the central artery or one of its branches can alone be totally blocked by an embolus so as to cause loss of vision. Obstruction of the ophthalmic artery would be relieved by anastomoses with other branches of the external carotid. Three objections have been made to the theory of embolism as accounting for the conditions attributed to it : (*a*) The partial re-establishment of the blood current. This is met by the fact that collateral circulation can take place to some extent through the capillaries around the optic disk. (*b*) The lack of ophthalmoscopic evidence in its favour. Some observers, however, claim to have seen the plug when one of the main branches has been obstructed. (*c*) That the pathological appearances in such cases as have been examined are not convincing. But the interval of time has in every case been long enough to change the appearance of the tissues.

(2,) *Hæmorrhage into the optic nerve sheath.*—No pathological evidence of this has been produced, but it remains a possibility in those cases in which some restoration of vision has occurred. This would be accounted for by absorption of the clot.

(3,) *Primary Thrombosis.*—This has been suggested to account for cases in which were noted :—(*a*) Previous attacks of transient blindness in the blind eye ; (*b*) A simultaneous attack of transient blindness in the fellow eye ; (*c*) Previous or subsequent attacks of transient blindness in the fellow eye ; (*d*) Signs of disturbance of the cerebral circulation at the onset of the blindness. Primary thrombosis is possible in certain abnormal states of the blood, but it is difficult to believe that this can happen in a typical case of retinal obstruction in an otherwise healthy person, and it would certainly occur in the veins before the arteries. Yet primary thrombosis in the central

retinal vein must be considered unproved. *A priori* its occurrence in the artery is difficult of acceptance.

(4,) *Spasm of the muscular walls of the artery.*—This explanation of the phenomena depends on : (*a*) The sensitiveness of the retina to the loss of a continuous supply of arterial blood ; (*b*) Clinical evidence of spasm in the retinal arteries. On the first point, there is no doubt that irreparable injury may be done to nerve cells through being deprived, even for a short time, of arterial blood. On the second, there is good indirect evidence of temporary blindness through spasm by reflex irritation, and there is direct evidence from ophthalmoscopic observation. This, therefore, appears to be a real cause of temporary blindness, which may become permanent, associated with the ophthalmoscopic appearances generally attributed to embolism.

(5,) *Disease of the Arterial Walls.*—This is at least equal in importance to embolism, and may act directly, without the formation of a thrombus, by a local swelling of the intima. Such a swelling is a proved fact. The nature of the process is fully discussed, and it is pointed out that there may be great diversity in the symptoms which it produces, in some cases profuse retinal hæmorrhages being present, in others the ordinary ophthalmoscopic appearances.

Cases of simultaneous obstruction of the central arteries occur now and then. Van Duyse[2] reports one which he attributes to embolism. But as it occurred in an old man with atheromatous arteries, it seems more probable that the cause of the trouble was *endarteritis obliterans*. A similar case is described by W. H. Jessop.[3] The retinal appearances were those of "embolism," but the changes seen in the vessels pointed to arterial degeneration. Some improvement took place in the vision of the right eye.

Schweigger[4] lends his authority to the view that cases usually diagnosed as embolism of the central artery are commonly due to endarteritis. He goes further than this, and opines that in the rare event of embolism actually occurring, cloudiness of the retina with a cherry-red spot at the macula is not an early symptom. But there are many cases in which embolism seems to be the only tenable hypothesis.

Haitz[5] also discusses the differential diagnosis between embolism and endarteritis proliferans. In one of his cases there was seen a white egg-shaped structure occupying the whole

width of the lower main arterial branch close to its origin at the centre of the disc.

REFERENCES.—[1]*Ophth. Rev.* March, April, 1902 ; [2]*Ibid*, Aug. 1902 ; [3]*Ophth. Soc. in Brit. Med. Jour.* June 23, 1900 ; [4]*Knapp's Arch.* Sept. 1901 ; *Ophth. Rev.* Jan. 1902 ; [5]*Ophth. Rev.* Aug. 1902.

RHEUMATISM (Acute). *Bertram Abrahams, M.B., B.Sc., M.R.C.P.*

ETIOLOGY.—Much attention continues to be devoted to the microbic theory, and numerous papers have appeared which, if they do not solve the problem, lead us at least to a clearer understanding of its conditions. In Pribram's magnificent monograph,[1] the bibliography of which extends to 68 pages, the only theory of this kind referred to was that put forward by Sahli and supported by Buns and others to the effect that acute rheumatism is an attenuated pyæmia caused by strepto- and especially staphylo- cocci of slight virulence. This view is still maintained by many, while others give their support to the bacillus of Achalme or to various "specific" streptococci.

Achalme's bacillus was fully described in the *Medical Annual* for 1902. Since then it has found but few supporters, in fact Hewlett[2] asserts that it is probably the bacillus sporagenes enteritidis, and has nothing whatsoever to do with rheumatism. It appears, however, to have been re-described by Thiroloix, while Pic and Lesieur[3] found it in the blood of one case of acute rheumatism out of eight examined by them. Triboulet and Coyon[4] state that it is but rarely to be detected in the blood during life, but occurs, as evidence of multiple infection, in autopsies of cases which have either run a prolonged or a fulminating course. With regard to micrococci, Poynton[5] and Payne[6] have continued their studies upon the diplococcus isolated by them. They consider it to be identical with that of Triboulet, Wassermann, and others, but have not succeeded in growing it upon strongly alkaline media, as Continental observers have done. Poynton and Payne find that intravenous injections of their diplococcus often, though not invariably, produce arthritis in rabbits, the micro-organism being recoverable from the exudate. They have not, however, been able to immunize rabbits against it. With regard to the production of valvulitis, it must be remembered that, as Foulerton[7] and others have pointed out, valvular vegetations are common in otherwise normal rabbits ; in my own experience at least 10 per cent have them. Meyer[8] describes a "strepto-diplococcus"—

i.e., a diplococcus usually growing in short chains—which he has obtained from the tonsils of five cases of acute rheumatism. It grows best upon blood-agar, requires a high degree of alkalescence, and soon loses its virulence; Meyer considers it to be identical with the organism described by Wassermann. It stains feebly by Gram's method. When injected into rabbits it causes arthritis with effusion, together with endo- and pericarditis, pleurisy, peritonitis, and other complications; the blood, however, remains sterile, but of seven cases of endocarditis thus experimentally produced Meyer was able to recover the organism from two. He considers it characteristic of rheumatism, but does not go so far as to say it is the cause of the disease. Allaria[9] records three cases of acute rheumatism in which the disease was communicated from one to the other *via* tonsillitis; the throats contained a non-pathogenic staphylococcus, and a streptococcus resembling that of Meyer, and causing arthritis when injected into guinea-pigs.

A specific diplococcus was first described by Triboulet in 1897, and he has recently, in association with Coyon, published a small monograph on the subject (*cit.*) They recognize four clinical varieties of rheumatism; in the first three no specific germ is to be recognized. The disease may be: (*a*) Quite simple, without any complications; (*b*) Associated with endocarditis; or (*c*) Complicated, but without involvement of the endocardium. The remaining form has various complications, and one or other microbe is present, or various micro-organisms may be associated. The problem is to discover whether the different clinical types may have reference to special germs. Triboulet[10] points out that the occurrence of heart disease some time after the subsidence of fever and arthritic symptoms recalls the condition of a secondary infection, and he and Coyon, in the work referred to, suggest that the blood of rheumatic patients is in an eminently infectable condition, and that micro-organisms probably enter from the gastro-intestinal tract. As to the actual bacteriology, they consider the strepto- and staphylo- cocci to be of but little importance, and Achalme's bacillus (*vide* supra) of rare occurrence; they believe that the special diplococcus, on the other hand, gives to the rheumatic process—the origin of which they do not explain—a condition of persistent subacuteness favourable to the development, by means of the microbe itself, of endocarditis.

The principal advocate of the modified pyæmia view is Singer,[11] who, in addition to his previous numerous researches,

now reports the discovery of streptococcus pyogenes in the blood of five cases of acute articular rheumatism and one of chorea; in all these cases the joint effusion was sterile. In an arthritis of the elbow associated with chorea, following follicular tonsillitis, staphylococcus pyogenes aureus was found, but not streptococci. Singer objects to the inferences of other observers on the ground that their animal injections do not satisfy Koch's tests; it may be pointed out that the results recorded in his own paper were only from fatal cases, and the micro-organisms obtained *post-mortem*, so that "agonal infections" are not thereby excluded. Some support is lent to the pyæmic theory by the researches of Betz[12] and Bernstein.[13] The former records a case of acute rheumatism with erythema exsudativum following upon empyema of the antrum; the latter has collected seven instances of multi-articular rheumatism following injury to a joint. He points out that all of them occurred in cases in which there was no breach of surface, acute rheumatism in consequence of infected cutaneous and joint wounds being unknown. The "pseudo-rheumatisms" described by Poncet and Maillard, to which reference will be subsequently made, tend to point to the same view. My own investigations of the nervous system in a case of acute chorea[14] revealed nothing inconsistent with the causation of the disease by a toxæmia, while I had previously shown[15] that strepto- and staphylo- cocci (the former more numerously) were present both in the urine and the tonsils of cases of rheumatic tonsillitis.

Such being the diversity of bacteriological evidence, it is not remarkable that many and widely different attempts have been made to construct a systematic etiology of rheumatism. To the view of Triboulet and Coyon, who regard the complications as the most important part of the disease, reference has already been made. Menzer[16] severely criticized Meyer's conclusions,[17] and has subsequently published a book on the subject.[18] He denies that Meyer's microbe, when injected into animals, produces a condition which is comparable to clinical rheumatism. He holds that this disease is an infective process due to ordinary cocci (especially streptococci) which have become pathogenic owing to a special reaction of the body. Infection, according to him, takes place usually by way of the naso-pharynx, especially the tonsils. The more powerful the local reaction the better the patient's chance of escaping general infection. Rheumatism, according to Menzer, is a clinical entity, not because it owns a

specific microbe, but on account of the special susceptibility of the organism which enables a general infection to occur. Webster[19] gives a careful summary of the whole problem. He considers that all cases of acute rheumatism are due to infection. Many organisms produce arthritis, but probably all of them cause other pathological conditions as well. The disease, then, is a general infection, with certain local seats of election, caused by a diplococcus circulating freely in the blood, which can produce a widespread inflammation of which the arthritis is only a part. Some hereditary or constitutional peculiarity, at present unknown to us, may predispose to inflammations in general and rheumatic infection in particular. It is possible that susceptibility may be increased by exhaustion, depressing influences, and especially lowering of the alkali tension of the blood, diminishing its bactericidal action; these circumstances would of course merely favour, not cause, the disease. Thelberg[20] holds that the diminished alkalinity of the blood (due to increase in lactic acid) lessens the resisting power to micro-organisms and renders the central nervous system more susceptible to irritation. All this he considers is due to defective digestion and assimilation; hence he states that in treatment calomel and alkalies are often more effective than specifics.

The Throat in acute rheumatism.—This subject, to which attention was first called by Dr. Kingston Fowler, has been much studied of late, and the majority of trained observers recognize that a relation exists between the faucial and the arthritic symptoms; in fact, Watson Williams[21] goes so far as to say that the majority of cases of follicular tonsillitis are rheumatic. I have shown by statistics[22] the great importance of the recognition of rheumatic sore throat in children. It is a curious fact, however, that sore throat is a much more common accompaniment of rheumatism in some localities than in others. Thus Pribram[23] finds that in Prague tonsillitis precedes rheumatism in only 1·7 per cent. of cases, and is a complication but little more often; other observers have found the proportion as high as 80 per cent. This tends to confirm the view that the tonsils may be a seat of infection, but only one of many; Pribram gives no statistics of faucial erythema, which I find to be a frequent concomitant at the onset of the arthritis. It will be remembered that all Allaria's cases of infective rheumatism had sore throats.[24] Menzer[25] has some admirable plates of tonsils invaded by streptococci and of similar micro-organisms in the

centrifugalized joint exudations. Minssen[26] found sore throat in 13 per cent of 190 cases of acute rheumatism examined at Kiel; the tonsillitis was more often catarrhal than lacunar. In some cases he regarded it as the seat of infection, in others as the first manifestation of the disease. Schurig[27] finds that as regards the German army the years in which tonsillar affections are most frequent are those in which there is most rheumatism; but of 99 cases of acute rheumatism observed by him at Magdeburg there was precedent sore throat in 13 per cent. If the throats of adults be examined at the very beginning of an attack—the usually mild nature of the joint affection tends to render the onset in children insidious—some degree of faucial erythema will very often be found. This I take to be no more than an initial manifestation. The acute tonsillitis—lacunar or parenchymatous—which in a certain proportion of cases precedes the attack by a few days, is variously regarded as the commencement of the disease, and as an indication of its seat or origin. It sometimes happens that in a given patient each successive attack of rheumatism is ushered in by tonsillitis, which certainly looks as if infection had taken place through the tonsils, in which organs, moreover, certain of the microbes found in association with the disease have also been detected. But the normal function of the tonsil is to defend the body against microbial invasion, and it is probably only when they have been damaged by previous inflammation that they lose this power.

Diagnosis.—Duckworth[28] believes that all forms of arthritis or joint disease, except gout, are the result of some infection. He says that the post-influenzal form is obviously infective, while the scarlatinal is generally pyæmic and an example of mixed infection, other pyæmic instances being the arthritis following dysentery, cerebro-spinal meningitis, parturition, and septic bone disease. Gonorrhœal arthritis is, he says, due to the gonococcus. Among diagnostic points he enumerates the sour, rank smell of rheumatism as contrasted with the sweet, mawkish odour of the breath in pyæmia, and the reaction to salicylate treatment of four cases out of five of the former disease. The absence of rigors would tend to exclude pyæmia.

Treatment.—Of the very large number of papers which have recently appeared on this subject very few contain anything original, most being mere *resumés* of well-established facts. All the authors advocate **Rest** in bed; Dock[29] also favours the idea of wrapping the affected joints in flannel and supporting

them by splints or starch or silicate of soda bandages. With regard to **Salicylates** he is an advocate of large doses, and holds that these drugs are contra-indicated in acute nephritis and granular contracted kidney, though they may be given with caution in chronic and subacute parenchymatous nephritis. The use of salicylates is carefully discussed by J. J. Walsh.[30] He holds that, though not specific, they are the most satisfactory remedy for rheumatism, cases of which if uninfluenced by them must be suspected of some other etiology. He advocates the use of the largest doses tolerated; digestive, nervous, and renal complications contra-indicate. He recommends that the administration should be so arranged that the daily dose is given before four o'clock in the afternoon. In heart complications sufficient **Alkali** should be given with the salicylates to render the urine alkaline. Hyperpyrexia is, says Walsh, much less frequent since the introduction of the salicylates. When these fail large doses of **Antipyrine** or **Phenacetin** have sometimes succeeded. Ewart[31] and Douglas Powell[32] recommend the use of **Alkalies** with the salicylates; the latter states that his purpose is to increase oxidation and elimination. Of ill-effects due to salicylates he has occasionally observed slowness and weakness of the pulse, and renal hæmorrhage. In bad heart complications, such as endocarditis, and particularly pericarditis, he considers **Opium** the most valuable remedy. Caton[33] applies **Blisters** over the affected joints, and believes that rheumatic endocarditis can be averted by the use of fly-blisters in the distribution of the first to fourth intercostal nerves. He holds that this endocarditis is only curable during a very short period, the first two to three weeks of its existence. Kerr[34] confirms the use of blisters in cardiac complications, but does not recommend them for the joints. The etiology and prophylaxis of the cardiac complications have been especially studied by Patton.[35] He finds that fully 30 per cent of ambulatory heart cases give no history whatever of rheumatism. He supports Hanot's view that certain toxins can cause cardiac inflammation. For prophylaxis of this he recommends that acute rheumatism should be treated with **Pure Salicylic Acid** till the pain and fever abate and sweating sets in, with some depression; **Sodium Salicylate** with the **Alkaline Diuretics** should then be administered. Locally he advocates continuous **Cold Applications** to the precordia; in the earlier excitable stages he prescribes **Aconite** and **Bromide.** Sansom[36] uses local ice-bags, as recommended by

Dr. Lees for pericarditis ; for nervous symptoms he recommends **Galvanisation** of the vagi. Antiseptic treatment has been advocated by Zagato[37] (see *Medical Annual*, 1902) and Stengel,[38] who gives minute doses of **Perchloride of Mercury** in sub-inflammatory cases complicated by depression. Menzer (*loc. cit.*) comes, from theoretical reasoning, to the conclusion that homologous **Antistreptococcic Serum** (*i.e.*, that prepared by the aid of the specific tonsillar microbes) should be employed. He holds that salicylates are not specific, as they do not ward off complications, and may even be harmful, owing to the artificial interruption which they cause to the natural course of the disease. Strügel (*loc. cit.*) found that improvement followed the use of **Antistreptococcic Serum** in three cases of obstinate rheumatism. Chipman[39] records a case of acute articular rheumatism with pyæmic temperature which was saved when apparently dying by the administration of antistreptococcic serum, seven 10 c.cm. injections of which were given in eight days. The only untoward after-effect was a severe attack of urticaria lasting six days. **Aspirin** (acetyl-salicylic acid) is an anti-rheumatic remedy which has been much vaunted of late. Sontag[40] has used it in twenty-three cases, and states that its action was purer and more powerful than that of the salicylates, and that toxic effects were almost absent. The drug is insoluble in water, and is best given in powders of from 10 to 15 grains three or four times a day. Coverley[41] records in nine cases the results of the use of aspirin, which he considers most satisfactory ; he regards it as an anti-neuralgic as well as an anti-rheumatic. Dalché[42] and Bardet,[43] following Joulie, take the acidity of the urine as their guide in treating rheumatism. The former found that the administration of **Sodium Citrate** diminished the acidity and increased the joint swellings and pains ; the latter similarly recommends the use of **Phosphoric Acid**, either diluted or in the form of acid sodium glycerophosphate. Sterling[44] recommends a **Salve** containing half an ounce of salicylic acid, oil of turpentine, and lanolin, and 2 ounces of lard. This is to be applied in a thick layer, covered with wadding and guttapercha tissue, and retained by a bandage. When the superficial epidermis is destroyed the turpentine is to be omitted.

The writer is convinced from personal experience that no other remedy acts upon the principal symptoms of acute rheumatism with the celerity and certainty of **Sodium Salicylate.** Its only disadvantage, when rationally used, is that it makes

the patient feel better too quickly, and that if he has his living to get he is inclined to leave the hospital too early, and so to incur relapses and complications. Sodium salicylate will not avert heart implication if exposure is permitted, but all agree that since its introduction the supervention of hyperpyrexia has greatly diminished in frequency. As to the method of administration, I give at first large doses at frequent intervals, usually 20 grains every two hours; if the temperature has not fallen and the pain abated within twenty-four hours I begin to think that I have made an error in diagnosis. In order to avoid unpleasant nervous sensations I give with it 3 to 5 grains of **Sodium Bromide.** I find that the taste, which is sometimes and by some subjects found most nauseous, is best covered by using infusion of quassia as the menstruum, and this no doubt serves also to obviate any tendency to depression. When the acute symptoms have yielded I continue the salicylate, but in diminishing doses. I do not allow the patient up till ten days after the establishment of a normal temperature, nor do I give him meat diet for another week. I need hardly say that by this time he is taking a quinine and iron tonic in place of the salicylate. Locally I find the results of cold applications most disappointing; they are in my experience painful, depressing, and comparatively ineffectual. I usually find it sufficient to wrap up the affected joints in cotton wool; in subacute affections of the interphalangeal articulations the use of a salve containing **Methyl Salicylate** is very helpful. I also have a pad of cotton wool placed over the precordia; should cardiac complications threaten or supervene I much prefer the use of fly-blisters, as recommended by Dr. Caton, or of leeches, to that of ice-bags. In cases of acute pericarditis in which there is sudden, rapid effusion—a condition more frequently found in renal than in rheumatic cases—I do not hesitate to apply the actual cautery to the precordial area, and have seen a more rapid absorption of the fluid follow than I should otherwise have believed possible. I have not been able to assure myself that anything is gained by the administration of alkalies with the salicylate. **Aspirin** has certainly a beneficial effect upon the symptoms of acute rheumatism, but I find it inferior both in rapidity and certainty to sodium salicylate; as the latter, given by the method just mentioned, does not produce nervous symptoms, the superiority of aspirin, except in expense, is in no way manifest. I must, in conclusion, call the reader's attention to the successful treat-

ment of certain grave cases—not coming into the ordinary category of acute rheumatism—by means of antistreptococcus serum.

References.—Works marked with * contain bibliographies. **Etiology.**—[1]**Der. acut. Gelenkrheumatismus*, Vienna, 1899; [2]*Path. Trans.* 1900; [3]*Jour. de Phys.* 1899; [4]*Le Rheumatisme art. aign en Bact.* Paris, 1900; [5]*Path. Trans.* 1901, pp. 10, 248; [6]B.M.A. meeting, sec. Pathology; [7]*Ibid.*; [8]*Deut. Med. Woch.* Feb. 14, 1901; [9]*Revist. Crit. di Clin. Med.* Nov. 23, 1901, [10]*Gaz. des Hôp.* 1901, No. 17; [11]*Wien. klin. Woch.* May 16, 1901; [12]*Memorabilia*, xliii, p. 449; [13]**Zeits. f. klin. Med.* xlii, p. 430; [14]*Path. Trans.* 1900; [15]*Clin. Soc. Trans.* 1899; [16]*Deut. Med. Woch.* Feb. 14, 1901; [17]*Ibid*, Feb. 7, 1901; [18]**Die Ætiol. des Acuten Gelenk Rheumatismus*, Berlin, 1902; [19]*Amer. Med.* 1902, p. 1037; [20]*New York Med. Rec.* Dec. 12, 1901. **The Throat in Rheumatism.**—[21]*Dis. of Upper Resp. Tract*, 4th ed.; [22]*Clin. Soc. Trans.* 1899; [23]*Loc. cit.*; [24]*Loc. cit.*; [25]*Loc. cit.*; [26]*Mang. Dissert. Kiel*, 1901; [27]*Deut. mil. artz. Zeits.* 1901, p. 170. **Diagnosis.**—[28]*Med. Rec.* Jan. 11, 1902. **Treatment.**—[29]*Phys. and Surg.* June, 1901; [30]*Amer. Med.* 1902, p. 1037; [31]*Chelsea Clin. Soc.* March, 1900; [32]*Ibid.*; [33]*Ibid.*; [34]*Med. News*, Oct. 5, 1901; [35]*Amer. Med.* 1902, p. 1037; [36]*Chelsea Disc. cit.*; [37]*Gaz. deg. Osped.* Feb. 10, 1901; [38]*Med. News*, Dec. 22, 1900; [39]*Med. Rec.* Feb. 1, 1902; [40]*Wien. Med. Presse*, 1900, No. 46; [41]*Therap. Gaz.* Nov. 1901; [42]*Bull. de Thérap.* 1900, p. 650; [43]*Ibid*, p. 652; [44]*Med. Rec.* Jan. 11, 1902.

RHEUMATISM (Chronic). *Bertram Abrahams, B.Sc., M.R.C.P.*

Diagnosis.—The question as to whether chronic rheumatism (in which the subacute form may be included) is to be recognized as a definite clinical entity is still a vexed one. One is tempted to believe that the expression provides a refuge for a number of joint conditions of doubtful etiology which will, with the progress of our knowledge, be otherwise classified. To remove, as is done here, from this category the group of infective but non-rheumatic joint inflammations, acute and chronic (see "Arthritis"), is, I am confident, to take one step towards clearing the ground for future investigation.

The diagnosis of chronic rheumatism obviously can only be effected by exclusion. J. J. Walsh[1] says that the following affections are usually grouped under this heading: (*a*) Recurrent subacute rheumatism; (*b*) Relapsing abarticular rheumatism, especially seen in children; (*c*) True chronic rheumatism, *i.e.*, the degenerative changes following upon acute rheumatism; (*d*) Allied diseases, chiefly called rheumatic because they are painful—"pseudo-rheumatisms," including pes planus, occupa-

tion and traumatic neuroses, varicose veins, etc. Weisz[2] holds that no true distinction can be drawn between acute and chronic rheumatism; the latter may occur with a high, the former with a low temperature. He quotes a number of illustrative cases from the Buda-Pesth clinique. Merrins[3] discusses the diagnosis from the pathological point of view, laying great stress on the occurrence of arthritis some time after, though in consequence of, an infection, as with the gonococcus. He holds that the term chronic rheumatism should be applied strictly only to such cases as can show a clear and unbroken connection with an attack of rheumatic fever; the future pathogenetic classification of arthritis will, according to him, be into cases caused by: (*a*) Trauma; (*b*) Bacterial infection (*c*) Toxins and other chemical irritants; (*d*) Nerve degeneration. Hawthorne[4] enumerated the following clinical facts in favour of the existence of a chronic rheumatism: The growth of chronic deformity immediately out of an attack of acute rheumatism; the appearance of the same conditions after subacute arthritic pains in early life; and the association of cardiac valvular lesions and of subcutaneous nodules with these same conditions.

Treatment.—The papers on this subject have to do chiefly with health resorts and physical methods. Wick,[5] while recommending them strongly, advocates care in their use; he insists that the temperature of the patient should be ascertained to be normal before baths, massage, and exercises are commenced. The subject was discussed at length before the Practitioners' Society of New York on Feb. 1st, 1901. Gibney,[6] who opened the debate, included arthritis deformans (rheumatoid arthritis) in his remarks; he quoted twenty-two cases in all with, on the whole, satisfactory results under various forms of treatment. He is not favourably impressed with the value of **Hot Air**; he is much more inclined to recommend the forcible and repeated breaking down of adhesions when inflammation has subsided, and the discriminate use of plaster either to secure absolute immobilisation or to permit a very limited range of movement. He applies the plaster next the skin, which is first smeared with a sterilized salve. He uses less forcible treatment in arthritis deformans than in chronic rheumatism. He considers the hot-air treatment to present no advantages over massage, or hot fomentations, or steam baths. Peabody finds the **Hot Air** baths, and also **Douche-Massage** (the Aix bath) of use in chronic rheumatism, but not in arthritis deformans. James prefers

Passive Motion, regularly carried out, to fixation in chronic rheumatism ; he has also found **Vapour Baths** in the indiarubber cabinet of some use. C. L. Dana has given up force and plaster of Paris in the treatment of arthritis deformans, which is a degenerative and not an inflammatory trouble. He prefers tonic treatment and rest, with good hygiene and plenty of fresh air. Beverley Robinson agrees in the main with Dana ; he uses massage, and permits a limited amount of motion to the affected joint. Kinnicutt recommends the Aix-les-Bains douche-massage system, which he believes to be of great service in certain advanced cases of arthritis deformans.

The treatment of chronic rheumatism was discussed at the Austrian Balneological Congress in 1902. The subject was introduced by Wick, of Bad-Gastein, and Burn.[7] The former referred to the gradations of type in the disease, and maintained that the term chronic arthritis was preferable to chronic rheumatism. He said that the different forms of arthritis were not sharply distinguishable, though a general resemblance existed in individual affections as regards lesions of the cartilage and bone on the one hand, and of the soft parts on the other. If rheumatism is an infective disease the varieties of the chronic form might be due to the secondary action of the micro-organism or its toxins in different circumstances, depending upon, say, a mixed infection, the age and predisposition of the patient, or the care and treatment received by him. The influence of sex and neurosis, and the different functions of various joints, with their unequal liability to disease, must also be taken into account. As regards treatment, Wick gives careful statistics of nearly 1600 cases coming under his care in Gastein. He states that treatment is essentially difficult, and that there is no reason in the present state of our knowledge to believe that sulphur, iodine, brine and mud baths exercise any specific influence apart from that due to **Heat** and their mechanical effects. He points out that the results obtained in all watering-places are on the whole very similar, though individuals may derive far more benefit from one than another. General hot-air and light baths are in much the same case ; locally they are only useful in cases of short duration characterized mainly by pain and disturbance of function, *i.e.*, those in which one has to do with the remains of acute rheumatism, or with true gout, and not with true chronic arthritis. This is best treated at a health resort with the aid of general baths and other adjuvant methods. As

regards prophylaxis, it is obviously of great importance thoroughly to treat cases of acute rheumatism, and to keep the patients from the risk of recurrence. Finally, Wick advocates the establishment of more health resorts wherever nature is likely to assist the treatment ; it is essential that they should be made accessible to the poor as well as the rich. Burn deals mainly with mechanical modes of treatment, including **Massage and Gymnastics,** *i.e.*, active, passive, and resisted movements. In some instances these were combined with **Active Hyperæmia** by means of local applications of hot air, or passive, effected by Bier's elastic or simple bandages. He divides his 865 cases into two main categories : (1) Those in which there are bony and cartilaginous changes—corresponding to the surgical group arthritis deformans ; and (2) Those in which these constituents of the joint are not obviously affected. The changes in the latter form may be : (*a*) Peri-articular, mainly in tendons and bursæ ; (*b*) In the contents of the joint, which may be increased in amount or diminished ; or (*c*) In the capsule ; the latter formed by far the largest class of cases in his practice. The best results were obtained in the peri-articular form ; here the treatment was usually short and the risk of relapse slight. Where the synovial fluid was increased, especially if to a great extent, improvement was very slow. If, on the other hand, it was lessened in amount, a condition which simulates arthritis deformans, the results of massage and gymnastics were quite good. The capsular forms Burn found very persistent and refractory ; he considers them to represent a late stage rather than a special type of the disease. The treatment involves breaking down adhesions, stretching the capsule, and so on, and is hence apt to be painful ; the cases in which but little pain was suffered at first are not among the most hopeful as regards treatment, since they usually betoken early immobility. The order of joints as regards a favourable result is wrist, ankle, knee, small articulations of hands and feet, elbow, shoulder, hip. Burn finds active **Hyperæmia** of the affected part, induced by a local hot-air bath or a hot carbonic acid douche, of great assistance. The cases do best when this is followed by massage ; the results with hot air alone are not nearly so striking. For stiffness of the joints passive movements are of most value ; the author considers that *brisement force* is a barbarous anachronism, often leading to internal hæmorrhages with exacerbation of symptoms, or at least delay in cure. Where gentle, systematic,

passive movements are ineffectual, fixation by bandages may be called for, or even an open operation. For Burn's view on the treatment of arthritis deformans, see p. 132 ; here he prefers general to local hot-air baths. Lindemann[8] believes the main agents in the treatment of chronic rheumatism to be **Massage, Electricity,** and **Heat.** He has devised an electrical apparatus for general and local hot-air baths, and states that temperatures of 194° F. can be borne by the whole body, and of 320° locally. Locally he also employs electrotherm pads consisting of wires, heated to below a red heat, enclosed in asbestos and canvas. He considers that the best general results are obtained by combining general **Light Baths**—two or three a week—with the local application of **Hot Air** or the rays of the arc light, and with massage and hydro-therapeutics. Wightman[9] extols hot air as an anodyne, a curative agent, a stimulant to rapid repair and absorption, and an eliminative agent. Daniell[10] recommends the **Waters** of Caledon, South Africa, in rheumatism ; they are of a temperature of 120° F. and contain carbonic acid and carbonate of iron. Dalché[11] and Bardet[12] recommend the **Alkalisation** of the blood even more in chronic than in acute rheumatism (*q.v.*). Gautier and Robin,[13] in discussing a memoir by Gaube, advocate treatment of chronic rheumatism by **"Remineralisation."** Gaube has found the mineral co-efficient of blood-serum in chronic rheumatism to be reduced from 9·55 to 8·01, and gives directions for restoring it to the normal by the administration of mineral salts.

References.—(Useful bibliographies will be found in the works marked with an asterisk). [1]*Amer. Med. News*, Sept. 1, 1900 ; [2]*Deut. Arch. f. klin. Med.* lxviii, p. 95 ; [3]*Med. Rec.* March 22, 1902 ; [4]*Brit. Med. Jour.* Oct. 12, 1901 ; [5]**Wien. Med. Presse*, 1900, 18 ; [6]*Med. Rec.* March 2, 1901 ; [7]**Wien. Klinik*, Sept.-Oct. 1902 ; [8]**Berlin Klinik*, Jan. 1901 ; [9]*New York Med. Jour.* Aug. 17, 1901 ; [10]*Jour. Baln. and Climat.* Oct. 1901 ; [11]*Bull. de Thérap.* 1900, p. 650 ; [12]*Ibid*, p. 652 ; [13]*Bull. de l'Acad. de Méd.* 1901, p. 594.

RHINITIS. *W. Milligan, M.D.*

Chronic Rhinitis.—Berndt[1] emphasises the necessity of thoroughly cleansing the nasal passages. This he considers is best effected by means of the post-nasal douche. After cleansing he applies watery solutions of **Nitrate of Silver** (1--10 p.c.) to the mucosa, followed by spraying the parts with from 2--20 p.c. solution of **Menthol** in olive oil. He also uses bougies and dilators of medicated gelatin, when the turbinal mucosa is much

engorged. The question of proper clothing, etc., must always be considered when dealing with cases of catarrhal rhinitis. An effective solution for nasal irrigation is as follows[2] :—

℞ Sod. Bicarbonate		Oil of Bergamot	♏iij
Sod. Biborate		Listerine	ʒss
Sod. Chlorid	āā gr. xxx	Glycerin	ʒj
Sod. Salicylate	gr. xl	Distilled Water	ʒviij

Rhinitis Vasomotoria.—Lublinski[3] recommends for the treatment of the swollen mucosa in these cases, the submucous injection of a 10 per cent solution of **Zinc. Chloride.**

Rhinitis, Atrophic, see "Ozæna."

References.—[1]*Therap. Gaz.* March, 1901; [2]*Med. Rec.* Sept. 16, 1899; [3]*Med. Rec.* Jan. 25, 1902.

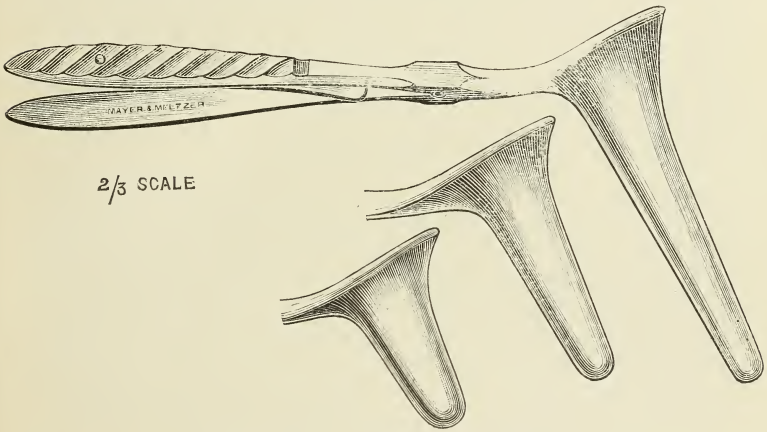


Fig. 68.—Killian's Modified Nasal Speculum.

RHINOSCOPY. *W. Milligan, M.D.*

Killian[1] maintains that by means of a proper speculum the region of the olfactory fissure, and also of the middle meatus, can be brought into view. The blades of the speculum (*Fig.* 68) are made thin and tapering, so as to be capable of introduction into a small space. Before introducing the instrument the mucosa is well cocainised. The speculum is introduced, under good illumination, between the middle turbinal and the septum, and is gently pushed forward to the anterior surface of the sphenoid. A good view can in this way be obtained of the anterior surface of the sphenoid and of the opening of the sphenoidal sinus. The following parts

within the middle meatus can also be seen—the hiatus semilunaris, the processus uncinatus, the bulla ethmoidea, the openings of the anterior ethmoidal cells, and the beginning of the canal to the frontal sinus. The speculum is made in three different sizes.

REFERENCE.—[1] *Münch. Med. Woch.* 1896, No. 33.

RHINOPHYMA. *Norman Walker, M.D.*

Rommo[1] reports cases treated by excision and the thermo-cautery. The simplicity of this operative treatment is not widely enough known. The operation consists in putting the patient under chloroform, and then with a razor shaping the nose to any desired form. Formerly the severe hæmorrhage made the operation a little troublesome, and perhaps led to hurry on the part of those not constantly engaged in operating; but the introduction of **Adrenalin** has greatly simplified the operation and has made it almost bloodless.

REFERENCE.—[1] *La Presse Méd.* Jan. 26, 1901.

RINGWORM. *Norman Walker, M.D.*

In spite of all the recent research, the treatment of ringworm still leaves much to be desired. Stelwagon[1] discusses the modern treatment of the subject. It is always interesting to note that the more experience one has in ringworm, the less confident is he of the success of remedies. Stelwagon believes in removing the hair, not by epilation, which he admits is hardly possible to do, but by depilation, by the action of sulphide of barium. The formula he uses is: **Sulphide of Barium,** 3 drachms; oxide of zinc and powdered starch, of each 2½ ounces; this is to be mixed with enough water to make a paste, and spread on the patch. After remaining from three to fifteen minutes it is thoroughly washed off, and there is reason to believe that the hair is destroyed for some distance down the follicle. He recommends for general use an ointment containing 2 drachms of **Sulphur,** 30 to 40 grains of **Naphthol,** to an ounce of vaseline; this is most useful in widespread cases. **Chrysarobin** and **Iodine** are best for circumscribed areas. He believes that the value of iodine is much under-rated. His favourite formula is made by the addition of 1 to 3 grains of the red iodide of mercury to an ounce of the tincture of iodine; this is painted on twice daily until the part becomes tender, then some simple ointment should be used for a day or two, followed again by depilation

and a renewed course of treatment. With regard to chrysarobin, he makes a remark entirely in accordance with our experience, which we have never seen noted elsewhere, *viz.*, that preparations vary greatly in quality and efficiency, some of them apparently possessing a maximum of irritating and a minimum of efficient properties. He applies it in saturated solution in chloroform.

Prof. Balzer,[2] of Paris, repeats a good deal that Dr. Stelwagon has said. He also approves of depilation. He says that epilation may be used where the tricophyton variety of fungus is present, and he differs from Mr. Morris in thinking that the small-spored form is more easily recovered from than the large. He uses for depilation the **Sulphide of Calcium,** which is possibly a little more efficient than the sulphide of barium, but is more apt to cause irritation. He, too, believes in tincture of iodine, which he applies twice a day and covers with protective plaster. The statement that the treatment is almost invariably successful, but four or five months will be required to arrive at a complete cure, is a trifle optimistic. Jackson[3] is correct when he says that if the patch is well in six months or a year the doctor may congratulate himself upon his success ; but we do not agree with him that ringworm of the beard requires six months for treatment. His paper is chiefly of interest in that he is a strong advocate for the use of **Goose Grease** as a basis for applying parasiticides. He says that a drachm of **Crystals of Iodine** to an ounce of goose grease is the most effective remedy for ringworm. We are, however, cautioned that much "goose grease" has never seen the bird, and that it is essential to get the real article if the full benefit is to be obtained. We have given this method a trial, and are prepared to recommend it as worth trying.

REFERENCES.—[1]*Jour. Amer. Med. Assoc.* Nov. 23, 1901 ; [2]*Med. Press,* Oct. 9, 1901 ; [3]*Med. Rec.* Feb. 1, 1902.

RODENT ULCER. *Norman Walker, M.D*

Almost all the literature on this subject has dealt with the effects produced by the **X-rays,** and many of the writers are most enthusiastic on the subject. There is no doubt that most cases are enormously improved by the treatment, and many are completely cured, but those who have most experience with the disease are not so blindly devoted to the new form of treatment as are the tyros. If the nature of the disease is recognized early, thorough **Excision** still remains the best treatment ; while in other cases circumstances render the use of caustics, such as

Arsenious Acid, more suitable. There is also another class of case which everyone who has had much experience in the disease must be familiar with, where the new treatment seems to have no effect. These cases were referred to by Professor Wild in the discussion at the Manchester meeting of the British Medical Association,[1] and he indicated his belief that it was the cases in which the cartilage was affected which did not respond to the treatment. On the other hand, some very extensive cases where the cartilage has been altogether destroyed have benefited wonderfully by the treatment, huge cavities filling up and becoming covered with healthy epithelium.

Dore said that while in extensive ulcerating rodents the **X-rays** were unapproached, in small growths without ulceration he had had better results from the **Finsen Light.**

Wild reported that in one case where the ulcer had involved the eye, the application of the rays was followed by panophthalmitis, necessitating the removal of the eye ; as, however, vision had already been lost, the accident was the less regrettable. It is interesting to note that accounts of injury to the eye are exceedingly rare.

Lancashire[2] divides the cases into ulcerated and non-ulcerated, and he finds the former respond more readily to treatment. He says that after two or three weeks' treatment the parts become darker and granulations spring up all over the surface, raising the level to that of the surrounding skin, and then healing over. The non-ulcerated cases react more slowly, and the effect of treatment is to cause ulceration of the edge, which is often marked out in sinuous lines. Lancashire prefers soft tubes, and notes the fact that tin-foil is not to be relied upon as a mask, which should be composed of fairly stout sheet-lead. It is only an instance of how far we still are from exactitude that Dr. Lancashire recommends that "for the first week or two" exposures should be given daily, while others have reported cases of cure of rodent with less than twelve exposures. (See "X-Rays").

McFeeley[3] read a paper in the surgical section of the British Medical Association describing the treatment of three cases by the application of **Formalin.** The pain is considerable, and often requires a general anæsthetic. The first application was of pure formalin, the second and third of 30 and 50 per cent formalin in glycerin. The three cases all did well, and he strongly recommends the treatment. His criticism of the X-ray method,

however, must surely be the outcome of inexperience, since he says that, except in isolated instances, it is not practicable.

REFERENCES.—[1]*Brit. Med. Jour.* Oct. 25, 1902 ; [2]*Ibid*, May 31, 1902 ; [3]*Med. Press*, Sept. 3, 1902.

RUBELLA (German Measles; Rötheln). *E. W. Goodall, M.D.*

It may be remembered that in the *Medical Annual* for 1901 we gave a short account of Clement Dukes' paper,[1] in which he claimed to have separated from rubella a distinct disease, which he provisionally termed the "fourth disease"; scarlet fever, measles, and rubella being the other three. An interesting communication on this subject comes from the pen of Watson Williams.[2] In an outbreak of 32 cases of rubella in a school at Clifton (Bristol), Watson Williams saw at least three which conformed closely enough to Dukes' description of the "fourth disease," that is to say, they were similar to that variety of rubella which is known as the scarlatiniform variety, the rest of the cases being of the morbilliform variety. Williams also observed in an outbreak of scarlet fever at Clifton, due to contaminated milk, cases of scarlet fever which were very mild, and also resembled the "fourth disease." Some of these cases were sent to a fever hospital, where they neither caught scarlet fever themselves, nor gave "fourth disease" or rubella to other patients. Watson Williams' observations throw doubt on the separate entity of "fourth disease." Dukes' views have also been combated by Caiger,[3] Washbourn,[4] Millard,[5] and Ker,[6] all of whom are observers with an unusually extensive experience of infectious diseases. Their opinion is that Dukes has not substantiated his claim ; [and with their opinion I entirely agree.—E. W. G.] On the other hand, Weaver[7] has given an account of an outbreak at Southport which is in favour of Dukes' doctrine. The whole question is excellently discussed by Marsden,[8] who agrees with the majority of observers that the separate entity of the "fourth disease" has not yet been established.

REFERENCES.—[1]*Lancet*, July 14, 1900 ; [2]*Brit. Med. Jour.* Dec. 21, 1901 ; [3]*Ibid*, Nov. 16, 1901 ; [4] and [5]*Ibid*, Dec. 21, 1901 ; [6]*Practitioner*, vol. lxviii. p. 156 ; [7]*Public Health*, Dec. 1901 ; [8]*Lancet*, Aug. 16, 1902.

SANATORIA. (See "Phthisis.")

SARCOMA (Inoperable). *R. Hutchison, M.D.*

Coley[1] gives some recent results of the treatment of inoperable sarcoma with the **Mixed Toxins** of erysipelas and *bacillus*

prodigiosus. In August, 1898 (*Jour. Amer. Med. Assoc.*), he published his results in 140 cases of inoperable sarcoma treated with the mixed toxins. In 24 of these the tumour completely or partly disappeared; 84 of this series were round-celled sarcoma, 21 spindle-celled, 9 melanotic sarcoma, 2 chondro-sarcoma; 12 were sarcoma (diagnosis confirmed by the microscope, but type of cell not stated); 6 were inoperable sarcoma resting on clinical diagnosis combined with a history of repeated recurrence in most cases. In 40, or slightly less than half, of the round-celled cases there was more or less improvement, as shown by decrease in size and cessation of growth. In only 3 of these was the treatment successful. Of the 21 cases of spindle-celled sarcoma, 10 disappeared entirely, and all the remainder showed marked improvement. In melanotic sarcoma Coley had no successes. George R. Fowler, of Brooklyn, however, reported one case of melanotic sarcoma of the tonsil and fauces, which entirely disappeared under the use of the mixed toxins. The patient remained well for two years, when a local recurrence followed and proved fatal. In addition to Coley's own results, the paper contained a summary of results in thirty-five cases successfully treated by other surgeons employing the same method. Of these 35 cases, 10 were round-celled, 10 spindle-celled; in 5 the diagnosis was clinical only. Of these 35 cases, 26 disappeared completely; two others decreased so much that only a small node was left, which was easily excised. One of the latter cases was well three years, and the other one year at the time of the report. Of the 35 cases, 14 were well over two years, and 6 cases over three years. At the time of the report (August, 1898) eight of Coley's own cases had remained well from three to six years.

He has since made a very great effort to trace the after-histories of these cases, and he is now able to report sixteen cases that have remained well from three to eight and a half years. Of these two recurred after three and eight years respectively, one dying of metastases in the abdomen; the second, after remaining well for eight years, died of local recurrence. The cases were all hopeless, inoperable cases, and the diagnosis of sarcoma unquestionable. The type of tumour in the 16 cases that passed the three-year limit was as follows: Spindle-celled sarcoma, 9; round-celled sarcoma, 2; mixed-celled sarcoma, 2; epithelioma, 1; sarcoma (clinical diagnosis only), 2. Two of the successful cases, now well three and

three-quarters and four and a quarter years respectively, were sarcoma of the parotid gland. Another case is also worthy of special mention, inasmuch as it shows that the toxins may be taken for long periods of time without harm. The patient, a well-known physician, with eight times recurrent spindle-celled sarcoma of the soft parts of the chest (anteriorly) was treated with small doses of the mixed toxins with varying intervals of rest for upwards of two years. The patient regained his usual health, and has now been perfectly well over six years from the beginning and four years since the cessation of the treatment. The tumours, while originally pure spindle-celled, were becoming more mixed with round cells, and more vascular with each recurrence; in other words, the disease, as so often happens, was increasing in malignancy until the toxins were begun. In addition to these sixteen cases that have passed the three-year limit, in eight others the tumours disappeared. One, a spindle-celled sarcoma of the abdominal wall, was well a year and a half, when the patient returned to her home in Europe, and was lost sight of. A third, a spindle-celled recurrent sarcoma of the leg, is now in perfect health, without recurrence, two years and a quarter after treatment. A fourth, a twice recurrent, spindle-celled sarcoma of the palm of the hand, disappeared, and the patient remained well two years and a half, when the tumour recurred. Refusing amputation of the arm, she was under the care of a "Christian Scientist" for eight months, during which time the tumour in the hand reached the size of a cocoanut, and extended above the elbow. Coley then amputated the arm just below the shoulder-joint, but she died of metastases three and a half months later. Though the patient was an especially intelligent person, aged twenty-two, she watched a small tumour, the size of an English walnut, grow to the size of a cocoanut under the "Christian Science" treatment, and yet was made to believe it was actually getting smaller and improving! She also stated that she felt no pain. This illustrates the utter impossibility of placing any value upon personal statements of patients in regard to improvement or cure of malignant tumours by "Christian Science." A fifth case, a chondro-sarcoma of the ilium of large size, disappeared; but the patient, after remaining well for seven months, had a recurrence, which proved fatal in about a year's time. A sixth, a round-celled angio-sarcoma of the breast, was well six months later, when the patient was lost sight of. A seventh, a recurrent fibro-angioma of the

lip, was well when last heard of over two years after operation ; and an eighth, a recurrent spindle-celled sarcoma of the thigh, disappeared ; but the patient, after remaining well for a year, had a recurrence locally and in the groin, which no longer yielded to the treatment. In addition to these twenty-four personal cases, Coley mentions two other cases in which he directed the treatment, although it was carried out by another surgeon. One case (Johnson's), a large, spindle-celled sarcoma of the pharynx, entirely disappeared, and the patient was well more than six years later. The second (Storr's and Griswold's), inoperable sarcoma of the breast and axilla, disappeared under 78 injections of the mixed toxins, and is now well, more than four years after treatment. The results thus far, Coley says, seem sufficient to warrant advising the treatment as a routine measure after all operations for primary sarcoma. While the treatment is not recommended in carcinomatous growths, it has been the experience of the writer that in many cases the toxins exert a marked inhibitory influence in carcinoma, although it is rarely curative. The only cases of carcinoma in which the toxins are likely to prove of much value, he thinks, are those in which they are used after primary or secondary operation as a prophylaxis against recurrence. The writer still believes that the action of the toxins upon malignant tumours can be explained only upon the theory that such tumours are the result of some infectious micro-organism, and this view is strongly supported by the recently expressed opinion of Czerny.

Reference.—[1]*Phil. Med. Jour.* May 25, 1901.

SCARLET FEVER. *E. W. Goodall, M.D*

Etiology.—*The supposed Infectivity of Desquamation.*—For a considerable time it has been held that a patient who is convalescing from scarlet fever is infectious as long as he is peeling. But recent experience and evidence go to show that this belief is in all probability erroneous. Millard[1] has recently investigated the question, and thus briefly sums up the principal arguments against the supposition that desquamation is infectious : "(1) The absence of evidence supporting it. It is difficult to believe but that if the old supposition were correct, strong evidence of it would ere this have been forthcoming, as is now the case with discharges from the nose and ears. (2) The fact that infectivity begins prior to the onset of desquamation and frequently continues long after desquamation has ceased.

(3) The fact that scarlet fever wards, although abounding in desquamating epithelium, are not a danger to neighbouring houses. (4) The fact that the proportion of 'return cases' does not appear to be increased amongst patients sent out from hospital still desquamating. On the other hand, the principal argument in favour of the view that desquamation is infectious, is the fact that patients still desquamating, but otherwise apparently free from infection, have frequently been known to convey the disease to others. The whole force of this argument disappears, however, when we consider that patients quite free from infection, and in whom desquamation has entirely ceased, have also been known to convey the disease; moreover, patients still desquamating have frequently mixed freely with others without untoward result."

TREATMENT.—Paul Moser, assistant physician to St. Anne's Hospital in Vienna, claims to have discovered a **Serum Treatment** for scarlet fever. I have not yet seen any more detailed account of his methods than the following[1]: "The serum is obtained by injecting horses with the products of cultures of streptococci, which Dr. Moser has found in the blood of 63 out of 99 children, who have died from the disease. . . . It has been used clinically since November, 1900, in about 84 cases, with the result that the mortality among 400 cases of the disease in St. Anne's Hospital has been reduced by one-half. Only the more severe of the cases in the hospital were treated with the serum, on account of the difficulty in obtaining a sufficient supply. All the children who were treated within three days of infection [? onset of disease.—E. W. G.] recovered. Their general condition underwent a striking and rapid improvement, and the pyrexia in many cases quickly abated. So far the serum has not been produced in a concentrated form, so that a comparatively large quantity has been injected into each patient. In some cases erythematous eruptions developed, but they soon disappeared. . . . An antistreptococcus serum has previously been employed in severe cases of scarlet fever, notably by Professor Baginsky, of Berlin [and also by Marmorek in Paris—E. W. G.], but without any really satisfactory results."

REFERENCES.—[1]*Brit. Med. Jour.* Oct. 4, 1902; [2]*Lancet*, April 5, 1902.

SCIATICA. *Graeme M. Hammond, M.D., New York.*

Hölscher[1] says that for ten years he has treated cases of sciatica with prompt and permanent results by exposing the

sciatic nerve and laying upon it for several successive days a gauze tampon saturated with a 5 per cent solution of **Carbolic Acid.** In fifteen cases he has seen but two recurrences, one after two years, the other after three years.

REFERENCE.—[1]*Cent. f. Chir.* Jan. 11, 1902; *New York Med. Jour.* Feb. 1, 1902.

SCLERODERMA. *Norman Walker, M.D.*

Ewart,[1] in a lecture on a case associated with *Raynaud's disease*, refers to the frequent association of these diseases. His patient suffered from coldness of fingers and toes for some years before any of the sclerodermatous symptoms developed. When admitted to St. George's Hospital the characteristic features of scleroderma were very marked, the skin of the face being drawn and stiff.

The treatment was rather hygienic than medicinal. The patient was put to bed and a **Liberal Diet** was ordered, with, later, six ounces of port wine daily. Next to feeding it is most important to protect the peripheral circulation. The hands were kept covered with protecting gloves, and enclosed in bags containing hot water bottles. (Dr. James, of Edinburgh, has suggested the use of radiant heat in these cases.) Passive movement and massage were applied at intervals. The internal treatment was commenced with **Thyroid Extract,** but this was discontinued in favour of **Liquor Trinitratis,** ℥ i of which was taken every four hours along with **Liq. Ammon. Acet.** Subsequently **Sweet Spirits of Nitre,** ℥ j, was added to each dose. The patient showed distinct improvement, and, with a view to fatten her, 2 ounces of olive oil and ½ an ounce of whisky was ordered every night. The improvement was rapid, and in four weeks the hardness of the skin of the lips had almost disappeared.

It is to be noted that scleroderma is a disease of adult life, and is not to be looked upon as a degenerative one. There was some atrophy of the *thyroid* in this patient, but Ewart suggests that this may be secondary. (Several observers have noted an improvement following on the administration of the extract.) The disease of itself has nothing of a fatal tendency, and recovery may eventually occur even in aggravated cases and after prolonged duration.

Vandervelde[2] reports a case in a patient of seventy-one, an exceptionally late age for the disease to appear. It commenced some months previously, after a very definite exposure to cold and wet, and developed rapidly. There was very marked

sensation of coldness, and although the temperature was normal there were areas of cyanosis. The secretion of sweat was reduced to zero; even the unaffected parts were perfectly dry. The reflexes were normal and the thyroid appeared to be intact. The affection spread from below upwards. The woody condition of the skin developed without any preliminary stage of œdema. The affected areas were neither rigid nor depressed. Treatment had little effect. **Thiosinamin,** which has been recommended in certain forms of the disease, was given, but no improvement was noticed.

Tedeschi[3] reports his researches on the metabolism in a case. The patient was a female, aged forty. The urea was slightly diminished. The amount of uric acid was normal. Phosphates were normal, and so were the chlorides. He concluded that income and expenditure in his patient were perfectly balanced. He undertook the research in the hope of throwing some light on the nature of the disease, but admits that a study of the metabolism does not take one any further.

Juliusberg[4] reports excellent results from the injection of a 10 per cent solution of **Thiosinamin,** 3 to 10 drops being injected on each occasion.

REFERENCES.—[1]*Med. Press,* Feb. 19, 1902; [2]*Jour. Méd. de Brux.* Jan. 2, 1902; [3]*New York Med. Jour.* Oct. 5, 1901 [4]*Münch. Med. Woch.* No. 37, 1901.

SCLEROSIS (Multiple). *Graeme M. Hammond, M.D., New York.*

Hoffman's[1] study of the literature of this subject and 100 cases of his own, including three microscopical studies of the central nervous system, has not inclined him to lay great stress upon the hypothesis that the disease follows infection. In his own cases infectious diseases only precluded the symptoms in 5 per cent. Syphilis plays no part. Metallic poisons and alcoholic dissipations are scarcely ever causes. In more than one-half of all the cases no etiological factor could be determined. The symptomatology of the disease is exceedingly variable. Mentally there is diminution of intelligence, and perhaps symptoms simulating paralytic dementia. Occasionally there are attacks of Jacksonian epilepsy. The speech defects are scansion, dysarthria, and aphasia. There may be palpitation of the heart, vomiting, dyspnœa, glycosuria, and polyuria. The symptoms may simulate those of bulbar paralysis, or of paralysis agitans, including pro- and retro-pulsion. In 54 per cent of his cases there was disturbance of speech; in 64 per cent, vertigo; in

6 per cent there were gastric crises associated with vomiting. In regard to eye symptoms, there was swelling of the papillæ in 50 per cent. Nystagmus was present in 56 per cent. The spinal symptoms were particularly those involving the motor tract. Spasticity was prominent. Intention tremor occurred in 71 per cent. Various symptoms of paræsthesia were present in 66 per cent. Vaso-motor changes were rare.

TREATMENT consists in the avoidance of other injurious factors, rest, moderate hydrotherapy, and the administration of certain drugs, particularly **Quinine, Potassium Iodide, Nitrate of Silver, Strychnine, Antipyrin, Salicylic Acid, Ergotin**, and **Arsenic.** Mercurial inunctions generally make the case worse. The prognosis is unfavourable, as a cure is practically unknown.

REFERENCES.—[1]*Deut. Zeit. f. Nerv.* vol. xxi, Hft. 12, 1902 ; *Jour. Nerv. and Ment. Dis.* July, 1902.

SEBORRHŒA. *Norman Walker, M.D.*

The confusion which exists with regard to this subject, and its practical importance, are the reasons for the inclusion here of this illustrated article, which does not profess to deal with all the different theories that have been put forward, nor to be in any way a final pronouncement on the subject, but rather to deal with it from the practical side, and openly to give the views of one party.

Seborrhœa used to be classified under two divisions, the dry (dandruff) and the oily, both of which were understood to be disorders of secretion of the sebaceous glands. It was not until Duhring and Unna pointed out the connection between dry seborrhœa of the scalp and certain eczematoid eruptions on other parts of the body, that the importance of dandruff began to be recognized. It was by all, and still is by the majority, looked upon as a sort of disagreeable necessity, too unimportant to worry about, and generally only referred to by the barber as an argument for the use of some proprietary hair-wash. It is now recognized that dandruff is the evidence of a mild inflammation of the skin of the scalp, which happens to be so remarkably tolerant of irritation that the classic signs of inflammation are not detectable. It is present in varying amounts, from a hardly noticeable quantity up to a profuse scaling which is a serious annoyance to the patient, and a positive hindrance to ordinary society duties. Sometimes it sets up so much irritation that the more familiar signs of inflammation appear, and a moist dermatitis develops on the scalp ; but this article

PLATE XXVI.



SEBORRHŒA

MORRISON & GIBB Lᵀᵈ EDINBURGH

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

is mainly concerned with its effects on the rest of the body, to which it so frequently spreads.

Plate XXVI illustrates very fairly one of the commonest forms, viz., that first described by Duhring as *seborrhœa corporis*. The patient was a young man who was aware that for some years his scalp had been unduly scurfy. Three weeks before the plate was painted he was conscious of some irritation over the sternum and between the shoulders, and on examining the part he found one or two reddish yellow spots. These rapidly enlarged, and around them others developed, whereupon he sought advice. It is unnecessary to elaborate the description, for the plate quite accurately shows the appearance of the eruption.

Previous to Duhring's recognition of its nature this disease was familiar to dermatologists, and was variously described as *Lichen marginatus, L. circinatus,* or *flannel rash*. The last name is indicative of one theory of its cause, but it did not occur to the older observers to connect it in any way with the scaliness of the scalp, which is always to be discovered in such cases when sought for.

In many cases the disease may remain at this stage for some time, and it usually readily yields to treatment, more or less appropriate. But in others it runs wild all over the body, the spots altering their character according to the character of the skin at different places, being dry and scaly on the extensors, and moist and sometimes slightly crusted at the flexures—differences due to the greater or less amount of exudation which accompanies the inflammation. There is, however, a character always present in *some* of the lesions of a seborrhœa of the body, *viz.*, a distinct yellow tinge in the centre of the spot. This yellow colour is attributed by some to the oily secretion from glands stimulated by the inflammatory process around them, though some of it is due to the infiltration of the true skin with fluid and cells. It must not be confused, as it often is, with the syphilitic tinge ; that is of a browner colour, and the accompanying hyperæmic red is usually deeper in colour.

While in many cases the spots (though some may coalesce with their neighbours) remain discrete, in others they are so numerous and run so continuously into one another that their individuality is lost. At the same time some of the infiltration disappears, and the skin, though intensely red, is no longer stiff to the fingers, but may readily be pinched up in folds. The scaling increases in amount, and large flakes and very numerous

smaller ones are constantly being cast off from the surface Such a condition is shown in *Plate XXVII*, taken from a patient in whom the development had been as just described. These cases are often described as exfoliative dermatitis, which may be Latinized as *Dermatitis exfoliativa seborrhoica*. Under suitable treatment the skin recovers, sometimes directly to the normal, sometimes it reverses the stages through which the exfoliative dermatitis developed.

TREATMENT.—The successful treatment of all the varieties of this disease depends on the recognition of the connection between the eruption on the body and the scaly eruption on the scalp. It is not to be denied that the eruption on the body can be successfully removed by treatment directed to it alone, but if the condition of the scalp be ignored, recurrence at some time or other is inevitable.

The successful treatment of seborrhœa of the scalp requires much perseverance on behalf of the patient. Frequent washing with soap (preferably Hebra's soap spirit) is essential, and great care should be taken that all the soap is removed by repeated washings with water. It is more easy to prescribe the further treatment than it is to persuade the patient to carry it out. The present generation has a marked objection to the use of grease on the scalp, and many endeavours have therefore been made to meet this objection. Spirituous lotions containing a small amount of **Castor Oil** (℥20 to ℥j) are frequently prescribed, and are often useful. **Parolein** has proved in the writer's hands the least objectionable of the menstrua which are at the same time reasonably efficacious. If the patient does not object to use an ointment, the **Ungt. Hydrarg. Ammoniat.** will often be found successful. But the most generally useful of the active ingredients in whatever application is made, are **Sulphur** and **Salicylic Acid.** It is the custom to prescribe these in comparatively diluted form. But on the scalp (and often also on the body) they may be used in a much more concentrated form than they are commonly prescribed. A simple dry seborrhœa will often rapidly disappear under the application of sulphur, salicylic acid, aa ʒiij ; parolein, ℥j. It is necessary to caution the patient that this strength is often too much for the hands, and therefore the application should be made by brushing, and not rubbing it into the scalp. So much sulphur in the application of course gives the hair something of a powdered appearance, but if the hair is cut quite short, as it should be, it is not very

PLATE XXVII.



MEDICAL ANNUAL, 1903.

SEBORRHŒA

MORRISON & GIBB Lᵀᵈ EDINBURGH

noticeable. The application should at first be made every day, then every other day, and so on, but it is necessary to impress upon the patient that the treatment must be continued for some time after all obvious signs of the disease have disappeared. The treatment of the scalp is *the all-important element* in the treatment of seborrhœa, whatever other part of the surface it may attack.

On the body it is not usually possible to use such strong applications. A paste containing say 20 grains of each to the ounce is usually efficacious ; sometimes even that is too strong. The general rule may be laid down that the greater the obvious signs of reaction of the skin, the milder should be the remedy. The conversion of an eruption of discrete spots into that of *dermatitis exfoliativa seborrhoica* (*Plate XXVII*) is often the result of too active treatment. When that condition has developed only the mildest of applications are admissible. Simple **Vaseline, Zinc Paste** (zinc ox. vaseline pp. æq.), or a **Zinc Oxide and Calamine Lotion** should be freely applied ; and only when considerable tracts of healthy skin have again made their appearance should any active drug be thought of.

It is perhaps still necessary to add a caution against the use of *arsenic* in, at all events, this stage of the disease. It almost invariably, if not invariably, increases the patient's sufferings. **Antimonial Wine** in small doses sometimes does good, but is more often disappointing in its results. **Thyroidin** is sometimes brilliantly successful, but the dangers associated with its administration should always be kept in mind, and if it is to be used the patient should be kept in bed.

SKIN GRAFTING. *Priestley Leech, M.D., F.R.C.S.*

Dr. Foote[1] describes the following as a painless method of skin grafting : A suitable place on the arm or thigh is prepared in an aseptic manner as for an ordinary operation, after which all antiseptics should be discarded. An ordinary hypodermic syringe is filled with deci-normal salt solution, the needle is inserted underneath the epidermis, and as much as possible of the salt solution injected into the skin, producing a wheal as in the Schleich infiltration method ; it is important that the injection be endermic, *i.e.*, between the cutis vera and the epidermis, and not hypodermic, otherwise the anæsthesia will be very imperfect. The needle is inserted three times in this manner so as to produce an elevation or ridge about one and a

quarter inches in length by one half inch in width. The graft is then easily removed by a sharp razor.

REFERENCE.—[1]*Med. Rec.* Nov. 1901.

SMALL-POX. *E. W. Goodall, M.D.*

ETIOLOGY.—For many years past it has been recognized that a small-pox hospital, when containing a considerable number of patients, especially those in the acute stages of the disease, would act as a centre of infection to a populous neighbourhood. But it has been disputed in what way the infection has been spread. It has been argued on the one hand that personal communication by means of the staff of the hospital, visitors to patients, trades-people, and the like, was quite sufficient to account for the facts. On the other hand it is argued that this is not so, and that the facts can be satisfactorily explained only by supposing that the infection is conveyed through the air, "aerial convection." The advocates of the latter view point out that the number of secondary cases decreases with the distance from the hospital, round which the cases are otherwise equally spread. The writer is of the opinion that the balance of evidence is in favour of the "aerial convection" theory, which receives further confirmation from some recent observations with respect to the small-pox ships of the Metropolitan Asylums Board. These ships are, and have been since 1884, moored at Long Reach, in the Thames, opposite Purfleet. The distance from the ships to the Purfleet shore is 700 yards. The recent epidemic of small-pox in London began in August, 1901, and the ships quickly became full of cases. This filling up of the ships was followed by an outbreak of the disease in Purfleet and its neighbourhood, which began to be noticeable in November. Thresh,[1] who investigated the outbreak, came to the conclusion not only that the ships exerted an influence, but that the influence was felt for nearly three miles. Hitherto it has not been supposed that this influence extended beyond a mile. There was every reason to conclude that personal communication played no part in the spread of the epidemic in and about Purfleet. The direction of the wind, however, appeared to have a distinct effect upon the prevalence of the disease.

DIAGNOSIS.—We give a brief abstract of a valuable paper on this subject, which was read by MacCombie[2] before the Hunterian Society of London in November, 1901.

(1,) *Difficulties arising during the initial stage.*

(*a*) Prodromal rashes resembling *scarlet fever:* (i) Punctate but

not petechial; best marked on the trunk, especially in the abdomino-crural triangle, and on flexor surfaces of limbs ; not on extensor surfaces, face, neck, or temples ; there is no faucial inflammation or enlargement of submaxillary glands; backache usually present. (ii) Petechial in abdomino-crural triangle and flexures ; in scarlet fever petechiæ are rare in this triangle, though they are seen in the flexures. (iii) In hæmorrhagic small-pox there may be an initial erythema, which is very vivid and diffuse ; the trunk and limbs are affected [and in some cases the face also.—E. W. G.] Petechiæ appear in the abdomino-crural triangle and the flexures, and very soon purple or inky-blue cutaneous and subcutaneous hæmorrhagic spots arise. [The erythema is sometimes accompanied by considerable swelling, so that it somewhat resembles erysipelas.—E. W. G.] The usual symptoms of small-pox (lumbar pain, etc.) are usually pronounced.

(*b*) Prodromal rash resembling *measles*, reaches its height within twenty-four hours of its appearance, and fades quickly ; involves the whole skin. "It disappears on stretching the skin, but it is only slightly, if at all, raised, and therein lies the great difference between it and measles." There are usually none of the catarrhal symptoms such as are commonly found in measles, though there may be some conjunctival suffusion. Filatow's (or Koplik's) spots are not present in small-pox.

(*c*) *Erythema multiforme.*—In this the symptoms of small-pox are absent, but in doubtful cases observation should be kept till the fourth day, by which time, if the case be one of small-pox, the papular eruption will have appeared.

(*d*) *Typhus fever.*—The eruption usually appears on the fifth day. [I have known hæmorrhagic small-pox to be wrongly diagnosed as typhus fever ; but in typhus the rash at first consists of rose-coloured spots, which disappear on pressure. In two or three days these spots become petechial, but there are no purpuric spots or subcutaneous hæmorrhages, such as are found in hæmorrhagic small-pox.—E. W. G.]

(*e*) *Influenza.*—Pain behind the eyes and pains in the limbs are common in this disease, but the diagnosis is often difficult, especially if there be an erythematous eruption. The observer must then wait for three or four days.

(*f*) *Ptomaine rashes* from shell-fish, etc. The constitutional symptoms are unlike those of small-pox.

(*g*) *Rötheln* and *copaiba* rashes, and *lichen ;* in these the initial symptoms of small-pox are absent.

(*h*) *Lumbago.*—Here there is no rise of temperature or other symptoms of small-pox.

[To the above list of diseases which are likely to be mistaken for small-pox in the initial stage, may be added (*k*) *purpura hæmorrhagica.* More than once has hæmorrhagic small-pox been mistaken for this affection; but in purpura there is no backache or headache, and the temperature is not so continuously high as in small-pox. It is only in the rare form known as purpura fulminans that the symptoms come on as acutely as in small-pox. Nor are the inky spots and blotches found in purpura. In small-pox the papular eruption makes its appearance on the third day, though it is important to remember that in the malignant form it may be delayed till a day or two later.—E. W. G.]

"It is important to remember that small-pox prodromal rashes are extremely rare in persons under ten years of age."

(2,) *Difficulties during the papular and vesicular stages.*

"The prominent initial symptoms of small-pox are headache, lumbar pains, often rigors, anorexia, vomiting and *malaise*, and pyrexia. The duration of these symptoms before the eruption of small-pox is usually forty-eight hours. And these initial symptoms are usually equally pronounced in vaccinated and unvaccinated subjects, and in mild and severe cases alike. The modification of the disease does not appear till the eruptive stage."

In *unvaccinated* persons the eruption is at first macular, but speedily becomes papular, being shotty and showing commencing vesiculation within twenty-four hours. At the end of five days the vesicles have attained their full size, and are round, of about the size of a small pea, and have a flattened, umbilicated top. They are multilocular, and do not entirely collapse when pricked with a needle. At this stage the pocks are filled with clear serum, but the vesicles soon become converted into pustules, which are dome-shaped. The eruption comes fully out in one to three days, according to its abundance. In *vaccinated* persons the eruption is at first macular or papular, but within a few hours it becomes shotty. "Some of the papules may show minute vesiculation at the end of the first day, and on the second and third days the vesicles have often reached their full growth. They are circular, often small, and generally more or less conical—not flattened or depressed, or showing only a minute depression. On the face the vesicles may be irregular in outline, and not

unlike spots of acne, but they do not show a central dot." Many of the papules never become vesicles, and many of the vesicles never become pustules.

The eruption of small-pox, both in the unvaccinated and the vaccinated, is most abundant on the face and extremities ; on the trunk it is more abundant on the back than the front. It is usually found on the palate, fauces and tongue. The temperature is high during the initial stage, begins to fall when the eruption makes its appearance, and continues to fall while the eruption comes out, often reaching normal.

(*a*) *Chicken-pox* is the disease which gives most trouble in diagnosis in this stage. The chief points in the differential diagnosis of small-pox and chicken-pox are : (i) The distribution of the eruption. In chicken-pox this is most abundant on the trunk (but not more so on the back than the front), and less abundant on the face and limbs ; on the latter it occurs more on the proximal than the distal portions. It may be seen on the palate and fauces, but is usually sparse here. (ii) The shape of the vesicles. Some of the vesicles of varicella are oval, especially on the trunk ; in small-pox they are all circular. (iii) The rate of growth of the vesicles. This is much more rapid in chicken-pox, since the vesicles attain their fullest size within twenty-four, and often within twelve, hours of their appearance. (iv) The unilocular character of the vesicles of chicken-pox compared with the multilocular nature of the vesicles of small-pox. There is usually no prodromal period in chicken-pox. " In a very few cases, however, especially in adults, there may be initial symptoms of backache, *malaise*, and some pyrexia, lasting from twelve to twenty-four hours, and followed by eruption."

(*b*) *Measles*.—The early stage of the proper eruption of confluent small-pox is not infrequently mistaken for measles. But the papules of the small-pox eruption are much harder and more raised than those of measles. Vesiculation does not take place in measles.

(*c*) *Syphilitic eruptions*.—The history both of the patient and of the eruption are important. Syphilitic papules are flat and not shotty, and the eruption is symmetrical.

(*d*) *Herpes*.—In this there are no initial or constitutional symptoms of small-pox. The same observation applies to :—

(*e*) *Eczema* and *impetigo*.

(*f*) *Pemphigus*.—No initial symptoms ; bullæ larger than the vesicles of small-pox.

(*g*) *Urticaria papulosa*.—The initial symptoms are absent. The wheals are small, dull white and somewhat hard ; but on the extremities they are sometimes not unlike the vesicles of small-pox.

(*h*) *Acne*.—This affects the face, shoulders, and back ; the pustules have a central dot ; there are no prodromal symptoms.

(*i*) *Rheumatic sudamina*.—History of rheumatism with sudden appearance of the eruption, which is most abundant on the trunk, and follows or is attended by sweating. The vesicles are nearly always small ; rarely are they as large as a small-pox vesicle.

(*j*) *Glanders*.—Onset not sudden like that of small-pox ; initial symptoms, also, are different. There are papules which quickly suppurate, without any vesiculation. There is usually a fœtid nasal discharge. [In some cases large subcutaneous abscesses form early in the disease.—E. W. G.]

(*k*) *Pyæmic skin eruptions ;* especially in ulcerative endocarditis. Usually sparse, petechial, and pustular eruptions. The general symptoms are different from those of small-pox.

[(*l*) A mild attack of small-pox has more than once within my knowledge been mistaken for *acne varioliformis*. This eruption affects the forehead and the borders of the scalp, but it may involve the whole scalp, face, and upper part of the chest. There are papules which undergo pustulation and necrosis, so that a crust forms, which separates and leaves a scar. There are no comedones. The disease is apt to be chronic. There are no symptoms at all resembling those of small-pox.—E. W. G.]

MacCombie lays great stress on the importance of thoroughly examining the whole of the skin in suspicious and doubtful cases.

Treatment.—Biernacki and Muir,[3] the former of whom we quoted in the last volume of the *Medical Annual* as speaking in favour of the treatment of small-pox by **Salol,** give a further experience derived from 1000 cases in the Dagenham Hospital. They state as follows : " Taking the results as a whole, they are very disappointing in comparison with the first small group of cases, and do not justify detailed publication. Nevertheless, we believe that the treatment has a limited value. In many cases there appears to be lessened irritation and mitigation of the secondary fever. Prescribers of salol, who anticipate more definite effects, are likely soon to abandon the treatment, and we write this with the hope that a recognition of its limited utility will ensure for it a continued trial by others."

Thomson and Love[4] tried the same remedy in the Belvedere Small-pox Hospital, Glasgow, in 77 cases. They came to the conclusion that it is "absolutely useless." They gave as much as 80 grains a day.

According to Muir, **Glutol,** mixed with soft paraffin in the proportion of 1 to 4, or 1 to 8, is a preventive of severe pitting and deep scars in small-pox.

REFERENCES.—[1]*Lancet,* Feb. 22, 1902 ; [2]*Ibid,* Dec. 28, 1901 ; [3]*Brit. Med. Jour.* July 19, 1902 ; [4]*Glasgow Med. Jour.* June, 1902.

SPHENOIDAL SINUSES. *W. Milligan, M.D.*

Furet[1] advises opening and draining the sphenoidal sinuses by way of the maxillary antrum under the following circumstances :

(1,) When there is a concomitant maxillary antral empyema.

(2,) In cases of sphenoidal sinusitis associated with cerebral symptoms.

(3,) In cases where the nasal passages are small or obstructed by some mal-formation.

REFERENCE.—[1]*Archiv. Intern. de Laryng.* Bd. xiv. No. 1, 1901.

SPINA BIFIDA. *Robert Abbe, A.B., M.D., New York.*
W. Scott Schley, A.B., M.D., New York.

Lloyd[1] discusses the varieties and treatment of *Spina bifida.* The injection method of treatment is discouraged. The best statistics give in the neighbourhood of 26 per cent mortality, and those of the Clinical Society of London 38 per cent mortality The method by excision is the one now more widely employed. The results are improving as the selection of cases for the operation is more careful. It is useless to undertake the operation in a case with multiple congenital defects, or with complete paralysis below the seat of the tumour ; also with marked cord degeneration, or a hydrocephalus, or a sloughing of the skin over the sac rendering it impossible to get asepsis, or to secure proper skin flaps. The operation is also contra-indicated in those cases in which the bony cleft is "so large that it will obviously be impossible to close it by any osteo-plastic operation within the endurance of the patient."

A number of these cases are of slight degree, and scarcely require operative procedure, such at least as contemplated excision of the sac; reinforcement of support by suturing aponeurotic and muscular tissue over the defect being occasionally sufficient.

St. George[2] reports two cases successfully treated, one by the injection of Morton's fluid and one by excision. In the first

case the spina bifida was located in the lumbar region, and in the latter the lower cervical region. He concludes that the treatment by Morton's fluid, though in the first case successful, is fraught with great danger, and should be avoided if possible. The injection of an irritating fluid into a sac communicating with the spinal canal, must lead to serious consequences, as evinced by the shock, etc., whereas in excision with proper aseptic precautions the position of the nerves can be carefully ascertained beforehand and avoided.

The dangers in sac excision are, circulatory disturbances from too rapid escape of cerebro-spinal fluid, shock from interference with nerve filaments, and meningitis. Preliminary tapping with a fine trochar under close observation reduces the danger from too rapid pressure reduction; blunt dissection or the reduction of part of the sac *en masse* with the adherent nerve filaments if tightly bound together, diminishes the danger of cutting them, and of shock from too prolonged manipulation; asepsis and perfect closure prevent meningitis. The head must be kept low during and for some days after the operation. Operative treatment should be postponed if possible until the third year or later. Tapping may be employed as palliative treatment should there be increase in size while waiting for a favourable time to operate.

Knott[3] discusses the varieties, diagnosis, clinical features, prognosis, and treatment of spina bifida. He reports four cases, and draws the following conclusions: (1) Owing to the distressing nature of the affection, the high mortality should not prevent attempts at surgical relief; (2) Meningoceles, meningomyeloceles, and syringomyeloceles may be benefited by operation; (3) The improvement in function cannot with certainty be estimated before operation, and pronounced evidences of nervous disturbance are not a contra-indication to excision; (4) Asepsis is absolutely essential; (5) The suture lines of the meninges and of the overlying tissues on different planes will, in the majority of instances, prevent leakage of cerebro-spinal fluid; (6) Pearson's plan of stopping canal with gauze to prevent leakage during operation is valuable; (7) Large bony defects may be effectually closed by muscle easier than by osteo-plastic methods; (8) It is not necessary to keep the child off its back during the healing of the wound; (9) Children with hydrocephalus accompanying spina bifida should not be subjected to operation.

REFERENCES.—[1]*Phil. Med. Jour.*, Feb. 8, 1902; [2]*Lancet*, March, 1902; [3]*Med. Rec.* Jan. 1902.

SPINE (Surgery of). *Robert Abbe, A.B., M.D., New York.*
W. Scott Schley, A.B., M.D., New York.

Lloyd[1] has reviewed the surgery of the spine in an article of some length. Before 1887, when Gowers diagnosed and localized a tumour of the spine, which was operated upon by Horsley with great success, this region was almost a *terra incognita* to the surgeon. Even as late as 1892 he could tabulate but 75 cases of Pott's disease and 103 cases of fracture that had been operated upon. The number of cases of tumour was so inconsiderable that it was hardly necessary to tabulate them. Spinal surgery at that time was only in its infancy. To the neurologist is due the major portion of the credit for the development of this field. There are numerous causes for failure even when the segment in trouble is localized; the involved segment does not lie under the vertebra from which it derives its name, and usually a greater space must be explored than apparently indicated; no callus, tumour, plastic exudate or inflammatory thickening, tubercular deposit, displaced bone, or hæmorrhage must interfere with the transmission of the impulse; exploration should be carried well up and down "until it is perfectly evident, without possibility of error, that all compression has been removed from above and below the involved segment and the intra-vertebral course of the nerves arising from that segment." He finds a number of the incomplete results recorded are due to a lack of recognition of this fact. It becomes an impassable barrier to surgical progress where the cord has been definitely injured. "It is the compression, and only the compression without injury to the cord, that can be benefited, and this may be taken as an axiom in the surgery of the spine." It is the province very largely of the neurologist to determine the extent of damage, and to say whether a case can be benefited by interference. Starr and Mills have given the best tables of localization. A *resumé* of the location and function of the segments is given, Gurlt reported 217 deaths out of 270 fractures (over 80 per cent); Burrill, from tables of the Boston City Hospital, cited 82 cases with 64 deaths (79 per cent), and of 22 per cent of recoveries only 11 per cent were satisfactory, the other 11 per cent being completely disabled. In the fatal cases the greater number of deaths occurred within a few days.

We should, if possible, wait until the question of recovery from shock or death from the effects of the injury can be settled. Also for as accurate diagnosis as possible, it being impossible in

the first few hours to determine with any degree of certainty how severe the injury really is, nor can we absolutely localize the injury to the cord. There should be delay until this period of shock has passed, and until it is evident that there will be no spontaneous recovery complete enough to render life bearable. If, after this period has passed, the patient still continues to improve, no operative interference should be considered; but as soon as the symptoms begin to show retrograde phenomena, or seem to have reached the end of the improvement, operation should be undertaken. Those with complete cord destruction should not be operated upon. Those without improvement after recovery from shock, in which the cord lesion is incomplete, should be operated upon. Those with incomplete lesion with extending compression symptoms (increasing paralysis and enlarging area of anæsthesia) should be operated upon immediately. Operation should be done in those cases where improvement is noted at first but arrested later, and in those who make a full or almost complete recovery, and where the paraplegia or other symptoms develop at a later date.

In *spinal fracture* the region involved should be considered before attempting a prognosis. The recoveries from interference in the cervical region have been but few.

Bowden[2] reports a case of **Laminectomy** for spinal fracture, where pressure from one of the broken laminæ produced a paraplegia with retention of urine and inability to expel gas or fæces from the bowel. The case illustrates the long time required so frequently for functional restoration. Three months after the operation the patient began to gain in flesh, and the bowels to act voluntarily. At the end of six months the patient could stand, and take a few steps with assistance. It was not until nine months after the accident that any control at all over the bladder was noticed. One year after the accident, he was able to walk two miles and was gaining in strength. The catheter was still used once or twice a day.

Malton[3] has recently formulated the following conclusions in regard to spinal fracture: (1) "There are no symptoms which establish (otherwise than through their persistence) irremediable crush of the cord; (2) While total relaxed paralysis, anæsthesia of abrupt demarcation, total loss of reflexes, retention, priapism, and tympanites, if persistent, point to complete and incurable transverse lesion, the onset of such symptoms does not preclude a certain degree at least of restoration of function; (3) Prognosis

without operation is grave; (4) While the results of operation are not brilliant, they are sufficiently encouraging to warrant us in making the practice more general; (5) In most cases it will be wise to operate within a few days of the injury; but a delay of some hours is advisable, partly on account of shock, and partly to eliminate the diagnosis of simple distortion; (6) We have no infallible guide to the extent of the lesion. The operation, at the worst, does not materially endanger life, nor affect unfavourably the course of the case, and may at least reveal the lesion and lessen the pain; it may sometimes save a patient from death, or from helpless invalidism of the most distressing character. Instead of selecting the occasional suitable case for operation, he would rather select the occasional case in which operation is contra-indicated ("the patient with great displacement of the vertebræ, the patient with high and rising temperature, the patient plainly moribund, the patient still under profound shock.") (7) The dura should be opened freely; it need not be sutured; drainage is not necessary." In acute cases, with cord symptoms, it is most difficult to estimate the exact degree of damage. It has been generally agreed heretofore, that in moribund cases, or in the presence of division of the cord, as evidenced by great deformity, vaso-motor paralysis, etc., that operation is contra-indicated; also that it is only compression without other injury to the cord that could be benefited.

In the discussion Dana[4] considered the operation safe; he had not met with a fatal case in six operations. If clinical observation showed that the spinal cord was undoubtedly crushed, he thought operation need not be advised. Fisher[5] mentioned two cases of fracture in which **Cocaine Anæsthesia** was employed because of fear to give the patient a general anæsthetic. There was no more shock than in general anæsthesia. Hammond[6] said in mild cases operation was very successful. He would also operate in hopeless cases, because nothing else could be done. Sachs[7] agreed as regards the importance and necessity of operation.

Bremer has reported a case indicating injury to the cord from an embedded spicule of bone, and in which complete recovery followed laminectomy and removal of the fragment. "The removal of bone in operating upon the spine should not be considered complete, until, without chance for error, all compression has been removed well up and down away

from the involved segment and its nerves." As regards the time of operating, it is best after several days, but at least defer until after recovery from immediate shock, and until a measurably accurate diagnosis of the extent of damage may be made. Hæmatomyelia plays an important part in the symptomatology. Fractures of the cervical portion of the spine give very grave prognoses, and death usually results in a few days, particularly in damage to the first three vertebræ. In dorsal and lumbar fracture the prognosis is better. In delaying operation our resources for extension and fixation must be remembered as indicated, with care in the employment of the former. Dislocations are reduced by manipulation alone, or combined with operative procedures if persistent and with cord symptoms, even to the extent of removal of parts of vertebræ. This is always justifiable in fracture dislocation when paralysis of body exists below lesion. Skiagraphy is of the greatest assistance.

Stewart and Harte[8] report a remarkable case of severed spinal cord in a female, in which **Myelorrhaphy** was followed by partial return of function. Following a gunshot injury with fractured laminæ, there was a space of three-quarters of an inch between the segments of the cord. The ends were approximated with three chromicised catgut sutures, one passed antero-posteriorly through the entire thickness of the cord and the other two being passed transversely. The patient was in better condition following the operation than before. On the fifth day she complained of pain in knee ; a squeeze on the calf of the leg felt as a pulling sensation in the back. On the seventh day hard pressure on anterior crural nerve was felt in the mid-dorsal region, but elicited no reflex muscular contraction. On the fourteenth day flexion of the foot was recognized as such, and followed by a powerful leg contraction. Had "goose flesh" on exposure to cold. Felt deep pressure over limbs and abdomen. On twenty-first day urine in bladder was felt, but could not be voided ; patellar reflex detected. On forty-second day massage of legs felt, pin point felt several inches below iliac crests on each thigh. Could voluntarily extend the right big toe, and the left leg slightly. On sixtieth day was out of bed in wheel chair: with great effort can feebly flex the knee. During the fifth month the patient was able to slide out of bed into the chair without aid. Menstruation appeared in the eighth month. In the sixteenth month the general health was excellent. The patient voluntarily flexed the toes, flexed and extended the

legs, flexed and extended and rotated the thighs. She can stand with one hand upon the chair. The bowels were under control except in diarrhœa. There was occasional urinary incontinence during sleep. Heat and cold if applied over comparatively large areas can be accurately differentiated, also when they are simultaneously applied one on each leg, etc.

The authors submit this case as evidence of the power of the spinal axones to regenerate ; it is also believed to be the first myelorrhaphy performed in man. Concerning the axiom of spinal surgery, that "compression, and compression only, without injury to the cord, can be benefited by operation," they consider that "sufficient compression to produce anæsthesia or paralysis must be accompanied by the cutting, crushing, or tearing of thousands of axis-cylinders ; and if axis-cylinders once injured never recover, the removal of pressure or of a spicule of bone sticking into the cord can do no good, and all operations are contra-indicated except to control hæmorrhage or combat sepsis." . . . "When the cord is divided or crushed, the maxim of spinal surgery is 'no interference' ; but who can say that the cord is divided or crushed without inspecting it." There is no sure guide, "and if the cord be exposed and found severed, why not suture it ? No harm can be done, and much good may result." Stewart and Harte have been able to hold the segments of the cord in place after excising one inch in the cadaver. More or less of the literature is reviewed.

Tuffier[9] has been recently using **Lumbar Puncture** as a means of recognizing fracture of the skull. In three cases where there was difficulty in distinguishing between fracture and cerebral contusion the cephalo-rachidic liquid was examined. In two it was tinged with blood, and both died. In one case, though the patient was brought in comatose, the fluid was clear and recovery followed.

Chipault[10] used lumbar puncture in 60 cases. He divides his cases into 4 groups : (1) Hydrocephalic cases ; (2) Cases of meningitis ; (3) Tumours of the brain, etc. ; (4) Different affections, epilepsy, traumatism, coma, chorea, etc., also as diagnostic aid. In 9 no cerebro-spinal fluid was obtained ; in 10 there was some sort of improvement, but of doubtful nature and not permanent; slight palliation of symptoms ensued in 14 cases; and in 26 the result was entirely negative. With tumours the results were disappointing and not to be compared to trephining. In the fourth group of cases the results were all unsatisfactory.

Ravant and Anbourg[11] have practised a second lumbar puncture some hours after the operation in cases where cocainization of the cord has been done for surgical procedure, and noted that the greater the post-operative headache, the greater the tension of the fluid, and the more turbid it is found to be. Histological examination of the fluid showed that the polynuclear leucocytes were most abundant in the most turbid fluids, which, after standing for some hours, or on centrifuging, would contain a large layer of corpuscular elements at the bottom of the tube. Sometimes the inflammatory reaction was sufficiently intense to determine the formation of a fibrinous coagulum on allowing the fluid to stand for some hours. Of 21 cases in which examination of the cerebro-spinal fluid was made some hours after the anæsthesia, in only one case was it found to be normal.

Comparatively few cases of *spinal anæsthesia* have been reported recently in medical literature. Halm[12] notes eight deaths in 1708 operations, a mortality in excess of that attendant upon the use of chloroform. Tuffier is reported to have had five deaths in 252 operations, but does not attribute these to spinal anæsthesia. **Tropa-cocaine** is reported to give better results. Illing[13] finds that $\frac{1}{6}$ grain can be counted on for anæsthesia lasting fifteen minutes or longer.

REFERENCES.—[1]*Phil. Med. Jour.* Feb. 8, 1902 ; [2]*Lancet,* July, 1902 ; [3]*Boston Med. and Surg. Jour.* March, 1902 ; [4]*Lancet,* Nov. 1901, from *Amer. Jour. Med. Sci.* ; [5]*Ibid.* ; [6]*Ibid.* ; [7]*Ibid.* ; [8]*Phil. Med. Jour.* June, 1902 ; [9]*Treatment,* Dec., 1901 ; [10]*Ibid,* March, 1902 ; [11]*Therap. Gaz.* Jan. 1902 ; [12]*Ibid.* ; [13]*Jour. Amer. Med. Assoc.* March, 1902.

SPINE (Tuberculosis of). *Robert Abbe, A.B., M.D., New York. W. Scott Schley, A.B., M.D., New York.*

In tuberculosis of the spine surgical intervention is occasionally called for, usually in cases of paraplegia or abscess formation where other methods have failed, and in those cases of Pott's disease affecting the posterior portion of the spine. It is considered contra-indicated when there are tubercular lesions elsewhere, in advanced sepsis, and in the presence of complete cord degeneration (myelitis, etc.) The presence of symptoms indicative of myelitis in children does not to so great an extent contra-indicate operation as with adults, recovery to an extent at least being usually attained. Laminectomy, with the removal of all perithecal thickening, soft granulations and cheesy material, bony detritus and spiculæ, should be done. Spinous

processes and laminæ should not be replaced in tubercular disease, because of the liability of their involvement in the tuberculous process. In abscess its position and extent are determined with the probe. In these cases we are usually limited to the plan of scraping and washing out the cavity, injecting **Iodoform Emulsion,** and uniting the skin. It is only in abscess connected with posterior disease, and in some occasional cases of cervical disease, that the wall can be removed. The abscess should be opened at a point giving freest access to the whole cavity.

SPINE (Tumours of). *Robert Abbe, A.B., M.D., New York.*
W. Scott Schley, A.B., M.D., New York.

Tumours of the spine may be of the vertebræ, of the cord, or of the meninges or connective tissue. The tumours in connection with the bones may be primary or secondary. Primary tumours are usually exostoses or sarcomata. The most common malignant tumour is the secondary carcinoma, following primary growth elsewhere. With the exception of the exostoses the treatment is practically palliative. The so-called cord tumours (those within the spinal canal) may be extra meningeal, intrameningeal, or of the cord itself. They may take the form of any of the varieties of tumour. One of the commonest forms is said to be the myxoma. The treatment must be laminectomy and attempt to remove the growth.

The field is here more extensive for surgical work than in tumours of the brain, but cord tumours require rather more minute observation for accurate localization. Once the diagnosis has been made there should be no delay in operating. This applies largely to the syphilitic growths as well, there being tumours of that nature that do not react well to mercury and iodide, and life may be endangered by too long a wait. The cervical portion of the cord is not a closed field to surgery in tumour formations. The case recently reported by Putnam and Krauss, and operated by Park, of sarcoma of the third cervical segment, has steadily progressed towards recovery.

Starr found in a collection of cases of tumours of the cord that in over 50 per cent an operation should have been feasible, and according to the pathological report, in 75 per cent the growth could have been removed. Former figures gave 50 per cent mortality following the operation ; more recently but 8 deaths, as a result of operation in 51 cases, has been recorded.

For laminectomy and exposure of the cord the method pro-

posed by Abbe (see *Medical Annual*, 1902), is the most generally useful. In brief, it consists of an incision parallel to and 1½ c.m. to one side of the median line and spinous processes, which is carried right down to the laminæ, the muscle being then bluntly separated from them (towards the median line, as far as the junction of spines and laminæ), and are then retracted to either side. Cutting forceps bite through the spines at their bases, leaving them attached by their apices and sides to the spinal muscles and aponeuroses, when strong retraction brings the vertebræ arches into good view in the centre of the wound. A modified form of rongeur forceps is then used to cut away rapidly a portion of each, and the canal and cord are quickly exposed. In closing, the spines and muscles are allowed to fall back into place after suture of the dura, a few buried interrupted cat gut sutures uniting the deeper muscular layers taken, and the skin closed by subcutaneous suture, with or without a small rubber tissue drain. With healing a firm and good protection is secured for the cord and with less damage to the spinal column.

Very little upon the subject has appeared during the year. Putnam and Krauss[1] reported before the American Neurological Association a case of sarcoma of the third cervical segment of the cord, and successfully removed. The case is regarded as unique because it was the only tumour of the upper cervical cord recorded so far; it was the only cervical cord tumour which had gone on an uninterrupted course toward recovery; it was definitely located and promptly removed without loss of spinous processes and laminæ; it was located in the most inaccessible region surgically, and was the only tumour of the cervical segment of the cord in which distinct phrenic nerve disturbances were noted.

It is generally agreed that as soon as the diagnosis of tumour is made, operation is indicated, death being the rule without interference. Where it has been found impossible to remove the growth, the relief of pressure from the laminectomy has been of benefit. *Gummata* are among the rarer tumours; Starr found but 26 in some 400 cases of spinal cord tumour recorded.

Chipault and Lefur[2] record a case presenting a localized patch of arachnitis of some standing in the lower dorsal region, which had produced most severe abdominal pain about the umbilical region. The body was strongly flexed and the abdominal muscles contracted violently. Hypodermic and spinal injections failed, likewise intercostal neurectomy.

Laminectomy was done, and the posterior roots of the corresponding spinal nerves cut, and the arachnitis discovered. The final result was entirely satisfactory.

REFERENCES.—[1]*Med. Rec.* July, 1902; [2]*Med. Press,* May, 1902.

SPLEEN (Surgery of). *Walter G. Spencer, M.S., M.B., F.R.C.S.*

Removal of the spleen for splenic anæmia.—Beverley Robinson[1] described the case of a boy who, at the age of fourteen, was suffering from severe anæmia with enlarged spleen. The white cells were below the normal in number, the red cells normal, the hæmoglobin about 77 per cent. There was no evidence of malaria. Eight years after removal, at the age of twenty-three the patient was in excellent health.

REFERENCE.—[1]*Med. Rec.* Jan. 18, 1902.

SPLENIC ANÆMIA. (See "Banti's Disease.")

STERTOR. *R. Hutchison, M.D.*

Stertor, as defined by Bowles,[1] is the term applied to sounds in the throat, mouth, or any part of the air-passages, produced by the movements of the air during respiration, and occurring in apoplectic and similar conditions. Several varieties may be recognized: (1) Nasal, arising from approximation of the alæ nasi towards the septum by the in-going air as in the act of sniffing; (2) Buccal, due to vibrations of the lips, and puffing and flapping of the cheeks during inspiration or expiration; (3) Palatine, arising from vibrations of the soft palate, whether the breath passes through the mouth or nose; (4) Pharyngeal, caused by the lolling back of the base of the tongue into near contact with the posterior wall of the pharynx; (5) Laryngeal, referable to the vibration of the vocal cords, as in croup; and (6) Mucous, from the bubbling of air through mucus or other fluid in the trachea or large air-tubes.

Stertor is a symptom with two meanings; the noise expresses the mechanical interference with respiration, and the mechanical interference is an accidental concomitant of unconsciousness. Threatened asphyxia is thus induced, and complicates the case by raising the blood-pressure and causing over-distension of the right heart. The forms of stertor which have a direct connection with the apoplectic state are: The palatine, the pharyngeal, and the mucous stertor.

All these forms of stertor, and the dangers they induce, can be prevented by **Keeping the Patient on his side.** The paralyzed

side should be selected, as the corresponding lung appears to be already prone to a low form of inflammation from impaired innervation. This side should not be changed, for if it is, mucus will gravitate into the opposite lung, and interfere with its functions also. The affected lung, even though it remains inactive and filled with mucus for a long period, is not injured. The same principle should be applied in the treatment of all conditions allied to the apoplectic, in which blood, mucus, or fluid exists in the lungs. The morbid state is thus simplified by the removal of the element of asphyxia.

REFERENCE.—[1]*Lancet*, July 6, 1901.

STOMACH (Diseases of). (See "Dyspepsia.")

STOMACH, (Surgery of). *Walter G. Spencer, M.S., M.B., F.R.C.S.*

Perigastric adhesions.—Hale White[1] deals with this subject in a clinical lecture. The adhesions may be due not only to gastric ulceration, but also to malignant or tuberculous disease. The most frequent result of ulceration is an adhesion to the pancreas, next to the liver, less often to the colon or other organ. The prominent symptom is severe and often excruciating pain, and the patient may suffer from paroxysmal attacks for years, and this duration becomes an important element in diagnosis. In Hale White's cases the majority of the sufferers were positive that the taking of a meal did not increase the pain, but the pain occurred rather when the stomach was empty. Besides the pain, there is also an area of tenderness over the situation of the adhesions. There may be, especially when the ulcer has healed, no other gastric symptom, no indigestion, nor vomiting, nor hæmatemesis, nor wasting, and the tongue remains clean. But also contracture may lead to gastric dilatation. As to the treatment, this is evidently surgical. Owing to the danger of re-formation of these adhesions, it is probably better, when feasible, to remove them rather than simply to divide them. Medical treatment, such as that suitable for gastric ulceration, is time wasted. If not removed, nervous deterioration, including the morphia habit, may ensue, and when these have become established there is a danger of the pain being attributed to hypochondriasis or hysteria; moreover, nervous symptoms may persist after the adhesions have been divided.

Gastric carcinoma.—Krönlein[2] finds that the average duration of life without operation is about a year, and that this is prolonged by gastro-enterostomy for about three and a half months, and by

gastrectomy when followed by recurrence there is a prolongation of fourteen months. But the recurrence may take place as late as four years; one case was alive and well after eight years, one after four years, two after three years, three after two years, and six after one year. In all cases practically a glandular enlargement was noted, both along the greater curvature and along the lesser curvature up to the left coronary artery.

In 5 cases of Morison's,[3] one patient died three years and two months, one two years and two months, one a year and three months, a fourth two years and eleven months, and a fifth six months after the operation, all except the last receiving very substantial relief by the operation.

Gastrectomy for carcinoma.—Syme[4] urges that the operation should be preferred to pylorectomy so as to avoid the local recurrence. The stomach remaining after pylorectomy is not essential for digestion, its removal is not attended by any greater risk, and the more complete the removal of the stomach, the greater the probability of immunity from recurrence. The operation of gastrectomy is in one respect easier than that of pylorectomy, in that the duodenum can be joined more readily to the cardiac end of the stomach than to the middle of the organ where the calibre is greater.

Pyloroplasty.—Morison[5] reports well of 20 cases of pyloroplasty, all of whom had been done over two years. Fourteen of the patients were living in good health, and taking ordinary food, one had been lost sight of, two had died (one of cancer at the operation site, a malignant having been mistaken for a fibrous stricture), the other from pulmonary phthisis. In three, although much improved, some stomach trouble remained, but none showed evidences of a return of the pyloric stricture. He concludes that in suitable cases this operation is indicated rather than the more severe gastro-enterostomy.

Gastrorrhaphy.—Diminishing the capacity of a dilated stomach may be combined with pyloroplasty, but seems to be unnecessary when gastro-jejunostomy is performed.

References.—[1]*Lancet*, Nov. 30, vol. ii, 1901; [2]*Cent. f. Chir.* 1902, Beilage 94; [3]*Lancet*, Jan. 11, 1902; [4]*Ibid*, 1902, vol. ii, pp. 735, 756; [5]*Brit. Med. Jour.* Oct. 19, 1901.

STONE IN THE URINARY TRACT (Radiography of).

E. Hurry Fenwick, F.R.C.S.

Radiography of the Kidney.—Neither practitioner or operating surgeon can afford now-a-days to neglect or depreciate radio-

graphy of the urinary tract. It is of course impossible to detect by means of the X-ray a very small spiculated renal or ureteric stone the size of a wheat grain, but all oxalates from the size of a coffee bean, all fair-sized phosphates, and large urates, can be discovered by the shadow which they cast upon the highly sensitised plates now universally adopted. An oxalate of lime stone gives the sharpest shadow. Let the reader compare *Plate XXVIII*, an oxalate of lime calculus in a young man (removed), with *Plates XXIX* and *XXX*, phosphate of lime stones in boys, and he will see how greatly the shadows vary in density.

Screen work with the X-rays is nearly always untrustworthy in stone in the kidney. A skiagraph must be taken.

Radiography of the Ureter.—Nor must we be content with an X-ray photograph of the kidney area alone; we must insist upon the lower ureter being also radiographed, for operative interference has made it abundantly evident that renal symptoms may be due to stones lodged in the lower ureter, a short distance from the bladder. I have not infrequently saved a patient an entirely unnecessary operation upon a kidney by insisting on an X-ray photograph being taken of the ureter.

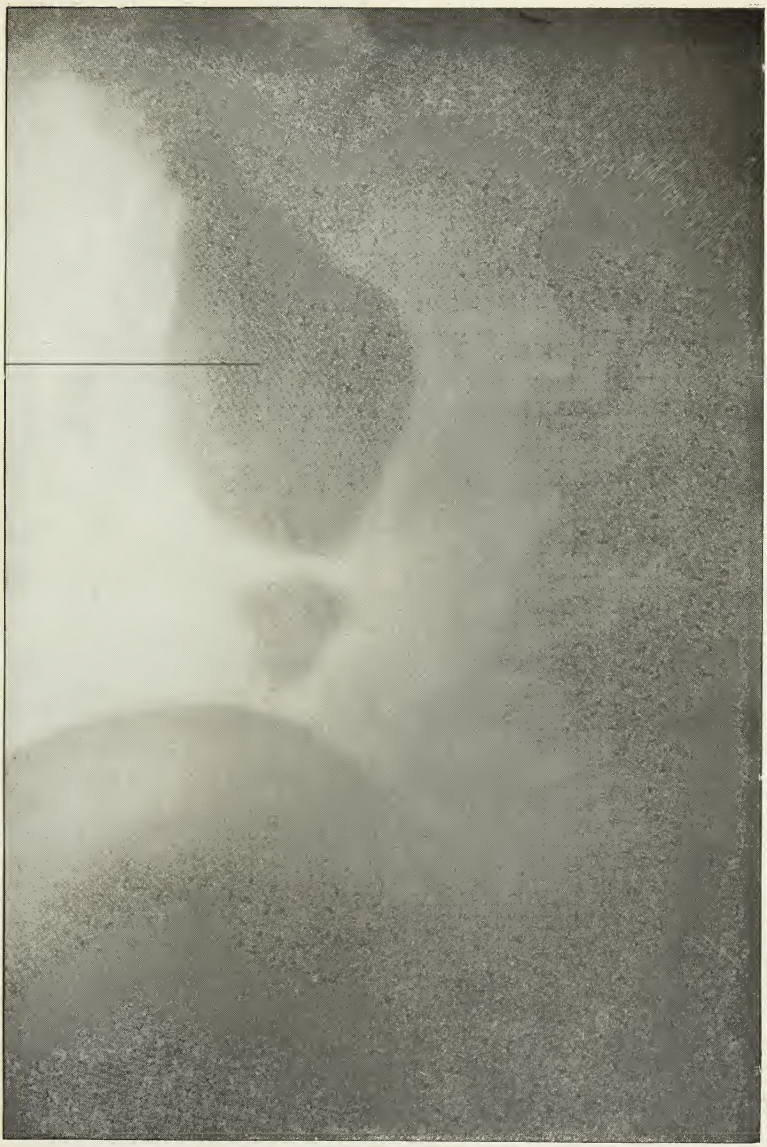
Again, as lower ureteric stones often induce all the symptoms of stone in the bladder, it is a great assistance to the practitioner to have the true pelvis of his patient radiographed, in all cases in which the symptoms of bladder stone are marked, but in which no calculus can be detected with the sound. *Plate XXXI* is a good example of this difficulty. The stone seen in the ureter in this case had caused all the symptoms of stone in the bladder, so much so, that I was summoned to perform litholapaxy. I removed the stone by incision used for tying the common iliac artery.

Bladder and Prostate.—Moreover those who have the X-rays at command should insist upon the bladder being photographed, especially in children and in men over forty-five years of age with bladder symptoms, because shadows are cast by bladder stones with distinctness. (Compare *Medical Annual* 1900.)

Lastly, the X-ray photograph of the prostate, when pain in the perinæum and rectum are prominent symptoms in men over forty-five, without a venereal history, is a very important element in diagnosis and treatment, because prostatic and post-prostatic calculi, which often cannot be felt, are rendered evident by the shadows they cast on the plate. It is also of

PLATE XXVIII.

X-RAY PHOTOGRAPHY IN URINARY STONE.



Large Double Oxalate Stone (A) in a man's kidney. Operation. Cure. (Author's case.)

PLATE XXIX.

X-RAY PHOTOGRAPHY IN URINARY STONE.



Latent phospho-uratic Stone in a boy's kidney. Operation. Cure. (Author's case.)

PLATE XXX.

X-RAY PHOTOGRAPHY IN URINARY STONE.



(A) Phospho-uratic Stone in the renal pelvis of a boy's kidney.
(B) Long phospho-uratic Stone in upper ureter. Operation. Cure. (Author's case.)

PLATE XXXI.

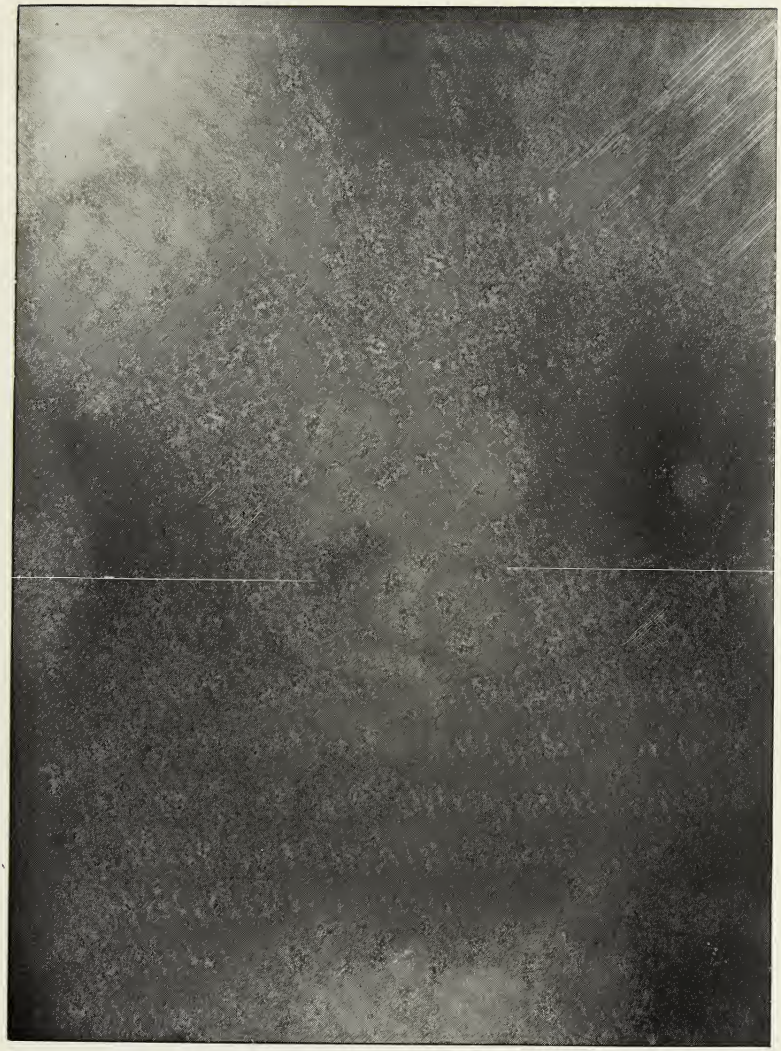
X-RAY PHOTOGRAPHY IN URINARY STONE.



Oxalate of Lime Stone in the lower ureter of a man. Operation. Cure. (Author's case.)

PLATE XXXII.

X-RAY PHOTOGRAPHY IN URINARY STONE.



An old man's bony pelvis, showing outline of a much enlarged sessile prostate and stones (S S¹) behind it. Operation. Cure. (Author's case.)

much use as a prelude to the enucleation of the enlarged prostate, because this diseased body casts a shadow, and the surgeon can trace the internal configuration of the prostate, as well as eliminate that most difficult of all diagnosis, stone embedded behind an enlargement. *Plate XXXII* represents such a case.

An old gentleman who was sixty-three years of age, was sent to me by Mr. Robert Debenham, suffering severely from calculous cystitis, having been entirely dependent on the catheter for eight or nine years. The X-rays demonstrated a packet of stones lying in the bladder, and showed two intravesical projections of an enlarged benign prostate. Suprapubic cystotomy relieved him of thirteen facetted stones, and the entire prostatic capsule was cleaned of all adenomatous masses through two lateral incisions, one on each side of the urethral orifice (suprapubic prostatectomy). He called upon me to show himself six weeks later. He had discarded his catheter, his urine was a little murky, but he emptied his bladder, and had neither difficulty, discomfort, or pain in doing this.

Finally, there is no part of the urinary tract, from the kidney to the deep urethra, in which the X-rays have failed to be of real value in my practice, to show the presence of unsuspected stone, and in many cases of great obscurity it has given the clue to a correct diagnosis.

One of my "Golden Rules" is, Every child with repeated attacks of severe stomach-ache should be X-rayed, for many of those recurrent attacks of apparently intestinal colic in children, are merely attacks of nephritic colic. Another rule I invariably follow is, Every child who has passed blood in the urine, painlessly, should have both kidney areas skiagraphed. I am convinced that painless hæmaturia in childhood is often the result of an early stage of oxalate of lime stone in the kidney, and this is demonstrable by means of the X-rays.

SYPHILIS. *J. W. Thomson Walker, M.B. Ed., F.R.C.S.*

Etiology.—At a recent meeting of the Berlin Medical Society,[1] Joseph and Piorkowski recorded the results of their investigations in twenty-two cases of syphilis. The infection in these cases was from five weeks to three and a half years standing. The spermatic fluid was examined microscopically, but no bacilli found. Cultures from this fluid on placental tissue gave positive bacteriological results in all cases. Drop-like colonies appeared

in sixteen hours, which later assumed a greyish appearance. Under the microscope the bacilli resembled diphtheria bacilli, appearing as rods with clubbed ends, and containing metachromatic bodies. The organism stained readily with dilute carbol-fuchsin, and Gram's method was positive. The colonies degenerated rapidly on the original medium and on agar, but were regenerated by the addition of blood serum. Auto-agglutination was observed in hanging-drop preparations, and the addition of serum from a syphilitic individual produced agglutination. Cases of old-standing syphilis and cases of azoospermia gave negative results, and control experiments with healthy spermatic fluid were also negative. The bacillus grew with difficulty on placental tissue taken from syphilitic women. Animal inoculation was not satisfactory, and experiments on the human subject not permissible, but the authors considered that the repetition of these investigations on a large scale would test the validity of the deductions.

M. Stassans[2] has described a new parasite in syphilitic patients. He observed motile bodies, apparently flagellated infusoria, in the blood-stained serum withdrawn by puncture from the inflamed glands accompanying a syphilitic chancre. He gave details of these protozoa, which were found as a rule free among the cells and leucocytes of the lymphatic tissue. Their numbers in the early stages of syphilis were scanty, and they were found almost exclusively in blood drawn from the border of the lymphatic region first contaminated. Later they gradually invaded the general circulation and multiplied rapidly by budding. He only found the bodies coincidently with the appearance of the rash, and they disappeared on the patient getting better. He found them attached to red blood corpuscles, and explained thus the diminished red blood corpuscles and percentage of hæmoglobin in exacerbation of syphilis, and also the fragility of the red blood corpuscles which had been observed by Murri.

Dr. Federn,[3] of Vienna, has recently expressed the view that there is no fundamental difference between the sore which remains a purely local manifestation, and that which is followed by the characteristic manifestations of syphilis. The so-called soft chancre differed from the sore which is followed by cutaneous and other phenomena only in the amount of suppuration. And the difference in the subsequent history was explained by the pyogenic organisms dominating and destroying the bacillus of

syphilis. He advances the hypothesis that an attack of syphilis may be aborted by artificially inducing free suppuration in the chancre.

Von Zeissl[4] analyses the researches on the bacteriology of the venereal soft sore. From these researches he believes that it is almost certain that Ducrey's bacillus is the specific cause of soft sore, and he gives in detail the reasons for coming to this conclusion. It has been shown that the pus of many unopened buboes is sterile, others contain staphylococci, and in others Ducrey's bacillus is present.

Syphilis and Life Assurance.—Runeberg[5] gives the results of a careful study of the statistics of the Kaleva Company for a period of twenty-two years. During this period there were 734 deaths, 84 of which he regarded as more or less directly due to syphilis. The cause of death in these cases was as follows: cardiac disease 31, general paralysis 22, disease of the brain and spinal cord 21, chronic nephritis 3, aortic aneurysm 2, arterio-sclerosis 2, "bone erosion" 1, unilateral pulmonary cirrhosis 1, tumour of the neck 1. The author comments upon the frequency of disease of the heart and nervous system, and he thinks that about 75 per cent of fatal cases of apoplexy and "heat stroke" are probably due to syphilitic disease of the blood-vessels. The mean interval in the 84 cases between the supposed syphilitic infection and death was 20·2 years, that between life assurance and death 8·1 years.

Runeberg draws the following important conclusions from his study. No life should be accepted within two or three years of syphilitic infection, on account of the liability to cerebral disease during the first years. Lives should be rejected when there has been any symptom of disease of the blood-vessels, heart, or nervous system. In ordinary cases of syphilis, however, lives should not be refused, but an extra rating be required, the amount of this depending on the efficiency of treatment, and the ability of the applicant to obtain proper treatment if symptoms occur.

Diagnosis *of Lues Cerebri.*—The early diagnosis of cerebral syphilis is the theme of a paper by Professor Tschish.[6] Early diagnosis is of vital importance, for the condition is only curable in the incipient stage, before the cerebral tissues have been damaged. Pupillary symptoms and changes in the tendon reflexes are passed over, for they are not pathognomonic; and further, when present and the result of syphilis they indicate

grave changes in the cerebral tissues, for which treatment can do little. *Headache* and *insomnia* are two symptoms which Tschish considers are very important. In the majority of cases dull diffuse headaches are characteristic, differing from the neurasthenic headache by being worse at night. In a minority of cases obstinate insomnia occurs. It resists large doses of bromides, but is usually relieved by potassium iodide. The sign which he insists is most important in the diagnosis of incipient cerebral syphilis, is *arterio-sclerotic change* in the carotid arteries and their branches. The temporal artery is the most accessible, and the first signs of sclerosis are to be found in the anterior temporal artery, and at a later date the changes spread backwards into the region covered by the hair. The visible changes are thickening, best seen in profile, and zigzag curving of the artery. The left side is usually first affected, in the proportion of 22 to 2 on the right. This sign has been present in every case of cerebral syphilis that he has specially examined for it, and he regards it as diagnostic. The arterio-sclerosis disappears after a few weeks of specific treatment.

Treatment.—Dr. H. M. Christian[7] considers that two types of syphilis should be considered in regard to treatment. (1) Simple benign syphilis with little or no tendency to relapse; (2) A more severe form, with tendency to relapse and increase in the lesions. The first and more common type was generally easily controlled by the internal administration of $\frac{1}{3}$ of a grain of **Proto-iodide of Mercury** in pill, three times daily, continued for eighteen months. In the second form we should endeavour to attain what is known as the "tonic" dose of mercury as suggested by Keyes. The patient takes an increasing number of pills from day to day until the gums are touched, or there is a decided fœtor of the breath. The number of pills is now divided by two, and the tonic dose obtained.

He used the **Biniodide of Mercury** in $\frac{1}{12}$th grain doses, combined with 5-20 grains of **Pot. Iodide** thrice daily in tertiary syphilis. In the early secondary stage the weight of the patient was most important as indicating the efficiency of specific treatment. When this does not control the loss of weight, cod-liver oil and hypophosphite solution are added to the treatment.

Dr. Michele Gravagna[8] used injections of **Artificial Serum,** with or without the addition of bichloride, in two cases of refractory secondary syphilis. In the first case he injected large quantities of serum (Hayem's fluid) after mercury and the

iodides had failed, but the patient died of syphilitic cachexia. In a second case, in which persistent lesions on the face did not yield to ordinary specific treatment, no effects resulted from the injection of Hayem's fluid. He concludes that this new method of treatment is not to be relied upon.

Rille[9] treated two cases of tertiary syphilis and six cases of psoriasis with a combination of 10 per cent of iodine and oil of sesamon, named **Iodipin.** 10 cc. of a 25 per cent solution of iodipin were injected daily, and good results were obtained in one case of syphilis after ten injections, and in the second after forty-two injections, while the cases of psoriasis also reacted satisfactorily. The advantages claimed for this combination are less iodism than from the iodides, and a longer stay in the body.

M. E. Loison[10] obtained very satisfactory results from the use of injections of **Yellow Oxide of Mercury** in an outbreak of syphilis in the 20th regiment of artillery. The following formula was used :—

℞ Yellow Oxide of Mercury (fresh)	grs. 22½	Gum Arabic	grs. 5
		Distilled Water	℥ 450

M

Freshly prepared yellow oxide must be used, and the liquid sterilized by heating before the injection, but prolonged heating is to be avoided, lest the red oxide be produced. Fifteen minims were injected once a week for a month, and then once a month for a year, and after that once in two months for the second year, then alternately with the proto-iodide treatment. The injections must be deeply placed, at a point where a horizontal line, two fingers' breadth above the trochanter, intersects a vertical line at the junction of the anterior two thirds with the posterior third of the haunch. After cleansing the spot carefully with soap followed by alcohol or ether, the fluid is slowly injected, and the puncture alterwards covered with collodion. A little pain may follow the injection, but at the longest only lasts two or three days, and the author has never seen an abscess result in over a thousand injections. The advantages claimed are those of the injection treatment generally, namely : Facility, accurate dosage, rapid and powerful effects, and the avoidance of the intestinal irritation of internal administration and of the inconvenience of inunction.

Welander's[11] method of treatment of syphilis by **Mercurial Sachets** is as follows : 1½ drachms of mercurial ointment (mer-

cury 1 part, lard 2 parts) is spread on half a yard of flannel or other fabric, and this is suspended about the chest of the patient. The same cloth is respread every day with the same quantity of ointment, and after ten or fifteeen days the cloth is renewed.

Friend[12] insists upon the importance of reclining **Rest** treatment in the constitutional stage of syphilis, for the following reasons: (1) All syphilitic lesions originate in the arteries; (2) Physiologic investigations show the value of reclining rest; (3) Clinical experience in the treatment of the specific fevers.

Kutner[13] recommends the inhalation of the vapour of **Blue Ointment** from a specially constructed box. After inhalations continued for half an hour, mercury could be demonstrated in the urine, and the symptoms were favourably influenced.

Joseph Collins[14] believes that the successful treatment of cerebro-spinal syphilis depends upon the discrimination of such parasyphilitic diseases as tabes dorsalis and general paralysis, and syphilis proper. For the former anti-syphilitic treatment was unavailing; for the latter mercurial treatment by inunction or injection should be used. Iodide should also be given, and pushed until the nervous symptoms are cured, when the quantity should be diminished and taken occasionally every week for life. Cold baths, fatigue, and overwork should be avoided, and tonic treatment adopted.

References.—[1]*Cent. f. Bäkt.* April 10, 1902, ref. *Brit. Med. Jour. Epit.* June 21, 1902; [2]*Lancet,* April 20, 1901; [3]*Med. Press.* Jan. 22, 1902; [4]*Cent. f. Bäkt.* Feb. 26, 1902, ref. *Brit. Med. Jour. Epit.* Jan. 14, 1902; [5]*Deut. Med. Woch.* 18, 20, 1900; [6]*Jour. Mental Path.* vol. 1, No. 2, p. 65; [7]*Therap. Gaz.* Nov. 1901; [8]*New York Med. Jour.* April 20, 1901; [9]*Wien. klin. Woch.* Nov. 30, 1901, ref. *Brit. Med. Jour.* Epit. Nov. 16, 1901; [10]*Archiv. de Méd. et de Phar. Militaires,* Jan. 1902, ref. *New York Med. Jour.* Feb. 22, 1902; [11]*Jour. des Prat.* No. 9, 1900; [12]*Phil. Med. Jour.* May 26, 1900; [13]*Berl. klin. Woch.* No. 2, 1900, ref. *Therap. Gaz.* May 15, 1900.

TÆNIA. (See "Worms.")

TEETH, THE. *J. G. Turner, F.R.C.S., L.D.S.*

Erosion.—The etiology of erosion has long been a subject of speculation and debate. The commonest site of the disease is on the labial surfaces of the teeth, the gingival margin being attacked first. Contrary to what obtains in true caries, the enamel—the outside tissue—suffers to a wider extent than the dentine; the surface affected looks as if it had been ground out with a wheel, and in later stages of the disease a deep groove

seems to have been cut in the affected tooth—in fact, the appearance strongly suggests one of the older explanations, too vigorous use of tooth brush and tooth powders. In its most typical form the surface of this groove is smooth and hard, but all gradations are met with up to a softness allowing easy piercing by a steel point. Though most frequently noted on the labial surfaces of the teeth, it may attack any part, and in some few cases is general, strongly suggesting the action of an actual solvent.

Such a general case has been made the object of special study by E. C. Kirk, of Philadelphia. The patient was a rheumatic subject, of fifty-four years of age. He stated that twenty-six years ago he became subject to rheumatic attacks, and at the same time noticed a peculiar roughness of his teeth. In course of time he noticed his teeth were actually disappearing slowly—the surfaces of the teeth seeming to be dissolved. The condition was far advanced when Kirk saw him. Considering how best to isolate the solvent of this man's teeth, Kirk noted that whatever it was would be in too small quantities for chemical analysis, but since it reacted with the lime and magnesium salts of the teeth, it must exist in the saliva as a crystallizable salt of these bases, though uncrystallizable in an albuminous fluid. Hence specimens of saliva were taken and dialysed, and from the dialysed solutions definite crystals were obtained. To identify these he proposed to compare them with other crystals. He argued that in such a rheumatic subject lactic acid (which has been previously described as existing in saliva) was probably the solvent agent; and that since a tooth is composed mainly of calcium phosphate with some calcium carbonate, and of magnesium phosphate with some magnesium carbonate, the forms to be compared with them were the crystals of lacto-phosphate of calcium and lactate of calcium, lacto-phosphate of magnesium and lactate of magnesium. Hence these salts were prepared and crystallized out for microscopic observation. The saliva had previously been determined to be acid, especially at night when the parotid secretion is absent, and this acidity might possibly be due to acid sodium phosphate, and not to lactic acid. Hence a series of salts was produced and crystallized out, using acid sodium phosphate instead of lactic acid. On comparing the results, the identity of the original crystals with those of the lactates and lacto-phosphates was apparent. Hence the solvent was demonstrated to be lactic acid.

Kirk further states that in the far most common class of erosions, in which the erosion is limited to the neck of the teeth, there is to be found in the buccal mucus acid sodium phosphate or acid calcium phosphate; and to the action of these agents the erosion is due. He would divide erosion into two classes: one in which the action is general and is due to lactic acid; and a second and commoner class in which the action is local, and due to the secretion of abnormal buccal mucus containing either acid sodium phosphate or acid calcium phosphate.

Pain after extraction.—This in general is due to: (1) Injury to bone in the operation of extraction; (2) Septic inflammation of the bone and surrounding tissues. The first of these is to some extent unavoidable, and is specially seen after extraction of lower wisdom teeth. The socket should be syringed daily with a warm antiseptic lotion, and the patient instructed to use large hot fomentations externally, and to wash his mouth out frequently with some slightly antiseptic alkaline lotion, using it as hot as he can bear it, *e.g.*:—

℞ Acid Carbol. ♏x | Aq. ℥j
Sod. Bicarb. gr. xx |

To be mixed with an equal quantity of boiling water.

Septic inflammation occurs as the result of: (*a*) The use of dirty instruments; (*b*) Auto-infection either at the time of operation or later; (*c*) Continuance of a septic osteitis present at the time of extraction. The first of these causes can always be prevented. If it is not practicable to boil the instruments, they may be sterilized by first washing in ether to remove all greasy material, then in alcohol to dry thoroughly, after which they are left to soak in 1 in 10 carbolic, which can now get in actual contact with every part.

Auto-infection may occur either at the time of the operation or later on. Occurring later on, it is probably more frequent in the mandible than in the maxilla, being due to infection of the wound by vitiated oral fluids. The undrainable situation of the mandibular wound obviously favours its occurrence by permitting the oral fluids to collect in the sockets. Occurring at the time of extraction, the infection is due to bacteria collected round the neck of the tooth, which are carried up by the blades of the forceps. This form of infection is probably the commonest of all. It may be prevented by swabbing round the neck of the tooth or root, with cotton wool dipped in a strong solution of a mixture of carbolic acid and sod. bicarb., and by dipping

the blades of the forceps in strong carbolic acid solution just before using; the blades then carry up an antiseptic as well as any germs which may still be left round the tooth. A good form of "conveying forceps" for such swabbing, and a very useful "wet bulb syringe" for syringing sockets are shown in *Figs. 72, 73*.

Persistence of septic trouble present at the time of extraction is most often seen in connection with lower wisdom teeth, these being the most difficult cases to drain. Necrosis of bone not infrequently follows, or where drainage is practically wanting, general septic infection. Such an occurrence has followed on the extraction and apparent evacuation of an abscessed lower wisdom tooth, and a case has recently occurred in the writer's knowledge where spreading necrosis, cellulitis, and death followed refusal to allow extraction of an upper molar till too late. As usual, the patient urged there was too much swelling, and she was too ill to endure the shock or leave her bed. The important point in treatment is frequent **Syringing**. This must be carefully done, and be personally attended to by the doctor, as it is both painful and difficult. A warm carbolic lotion is the best; hydr. perchlor. or formalin are too painful.

Eve's multilocular epithelial tumour of the jaws.—Mr. Stansfield Collier records a case, verified microscopically as to its nature, in a patient of about fifty-five, which recurred and proved fatal within a year of resection. He suggests that the prevalent idea as to the comparative innocence of these tumours is too hopeful a view.

Porcelain roots.—Success has been claimed for the use of porcelain roots in cases of upper molars when one root has become devitalized and denuded of its attachment to the gum, the bone of its socket being also absorbed. The root is cut off and a porcelain replica of it made of the same materials as porcelain inlays, a square-shaped root-canal being reproduced. To place the root in position, a hole is drilled through the crown of the tooth to the base of the amputated root. The false root is placed in position and a pin introduced through the hole in the crown. The whole is then filled with amalgam and presents an appearance as in *Fig. 69*. It is claimed that the gum in shrinking contracts tightly on to the smooth porcelain, while the bone is never involved in the operation.

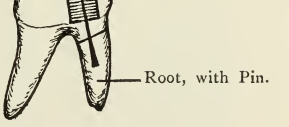


Fig. 69.

Syphilitic teeth.—Although only well-marked examples of Hutchinson's teeth can be taken *by themselves* as conclusive evidence of congenital syphilis, yet any lack of full development in the incisor teeth should be looked upon with suspicion. Brooksbank James publishes a series of cases, occurring in the same family, of hereditary locomotor ataxy due to congenital syphilis, which emphasizes this. Of five members of the family, aged from eight to twenty (whose upper incisors could therefore be examined), only one showed "pegged teeth"; the upper incisors of all the other four were "widely separated, and narrowed at the cutting edge." The child with pegged teeth and three of the remaining four presented saddle-shaped noses; the last of the four had a well-shaped nose, but many evidences of ataxy. The early history of only two of them gave infantile evidences of congenital syphilis.

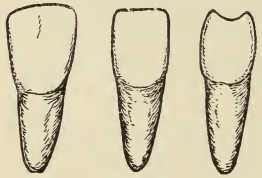


Fig. 70.
a.—Normal upper central incisor.
b.—Showing hypoplasia, suspicious of congenital syphilis.
c.—Hutchinsonian upper incisor.

A comparison of the outlines of the accompanying figures will show the transition from healthy to pegged teeth (*Fig.* 70).

Mercurial stomatitis. — A. Loup[1] points out that mercury is not *per se* the cause of mercurial stomatitis; but that it prepares the soil for a vigorous growth of germs pre-existent in the mouth, and which are the determining cause of the stomatitis. Hence, as with "ulcerative stomatitis," contagion from person to person is possible. The obvious remedy is to start with a clean mouth; scale the teeth, and insist on the frequent use of an antiseptic mouth-wash.

Teeth in Rickets.—The temporary teeth in rickety children are known to be prone to early and rapid decay, and the expression "rickety teeth" is often used, without any clear knowledge of facts to base it on. Such a definite basis for the expression is given by photographs published by Sydney Spokes, which shew that not only the temporary, but also the permanent teeth are extensively affected in rickets. In his sections the dentine appears to be normal, but the enamel shews, in the parts earlier laid down (*i.e.*, the parts nearest to the dentine) defects in calcification which are almost macroscopic in their extent. The photographs in *Plate XXXIII* are from the stained section of a developing permanent tooth of a rickety

PLATE XXXIII.

TEETH IN RICKETS.

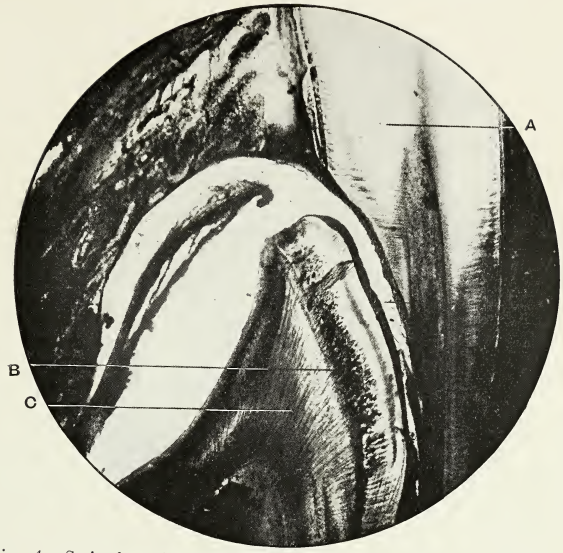


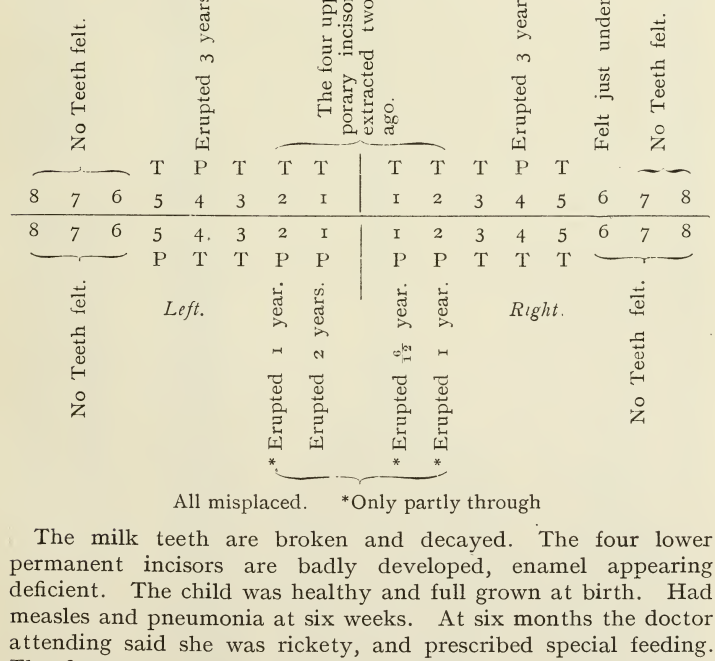
Fig. A.—Stained section of developing permanent tooth of a rickety monkey. (A) Piece of temporary tooth in process of absorption. (B) Ill-formed enamel-spaces filled with stain. (C) Dentine.



Fig. B.—Part (B) of above × 240. (D) Ill-formed enamel. (E) Dentine (*Sydney Spokes*).

monkey, both being from the same section, but *Fig. B* being more highly magnified. Where the enamel has been badly formed the stain has filled in the spaces, rendering the defect strikingly obvious. Sections of both temporary and permanent teeth from rickety human subjects shew similar conditions, but photographs are not yet available.

Retarded eruption of permanent dentition in rickety children.— Dr. Eric Pritchard records the following case in which retarded eruption of permanent teeth appears to be due to rickets. The case is that of a girl, aged $14\frac{3}{12}$ years, and the present dentition is shown below, dated Oct. 8, 1902 :—



All misplaced. *Only partly through

The milk teeth are broken and decayed. The four lower permanent incisors are badly developed, enamel appearing deficient. The child was healthy and full grown at birth. Had measles and pneumonia at six weeks. At six months the doctor attending said she was rickety, and prescribed special feeding. The first tooth erupted at fifteen months, the others followed slowly. Present state : The child is short for her age, and has marked genu valgum ; is ordinarily intelligent and attends

school ; anterior fontanelle tender and very markedly flattened. Breasts well developed, and recently has had pelvic pains [approaching menstruation ?]. Other such records are needed.

Temporary Fillings.—Temporary fillings are chiefly useful under two conditions : (*a*) To relieve toothache ; (*b*) To arrest progress of decay pending more radical measures. They are useful, also, in rendering the dentine of the tooth less painful on manipulation, or to prevent the inconvenience of food accumulating in big cavities.

To use temporary fillings intelligently for the relief of pain, it must be borne in mind that pain in a carious tooth may be due to : (1) Sensitiveness of the exposed dentine ; (2) Actual exposure of the tooth pulp ; (3) Septic inflammation of the tissues around the tooth due to absorption from a dead and decomposing pulp—the first step on the road to alveolar abscess.

The materials which will be found most useful for filling are : (*a*) Absorbent cotton wool pledgets soaked in an alcoholic solution of gum mastiche (to which some carbolic acid may be added) ; (*b*) Soft guttapercha ; (*c*) Osteo-plastic cements. Of these last the Rock cement stopping prepared by C. Ash and Sons, Broad Street, Golden Square, London, W., and Ames' oxy-phosphate of copper cement, supplied by the same firm, are the most generally useful. Other materials needed are : Absorbent cotton wool (which can be prepared by boiling ordinary non-absorbent cotton wool to free it of grease), non-absorbent cotton wool, oil of cloves or creosote, carbolic acid (pure liquid).

The instruments needed, for illustrations of which we are indebted to the Dental Manufacturing Company, Limited, 6-10, Lexington Street, London, W., are the following :—A plane mouth mirror (*Fig.* 71), of which the size No. 4, or about that shown, is most useful. They are more generally made concave to magnify, and these distort by reflection, but plane can be had to order. A pair of conveying forceps (*Fig.* 72), with curved blades ; a water syringe (*Fig.* 73), which also serves to syringe out septic sockets ; a hot-air syringe (*Fig.* 74) ; a double-ended probe (*Fig.* 75), with one end rectangular, the other slightly recurved ; various sizes of spoon-shaped excavators (*Fig.* 76), curved both right and left as shown, and an enamel chisel (*Fig.* 78) to prepare the cavity ; flat and ball-ended pluggers (*Fig.* 77) of various sizes, to introduce the filling ; a slab of ground glass or porcelain for mixing

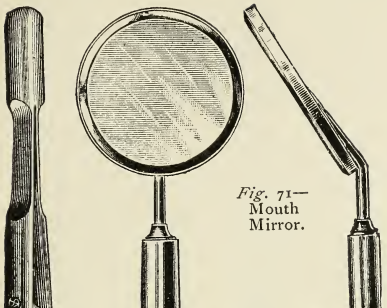


Fig. 71.—Mouth Mirror.

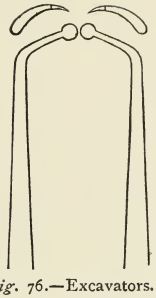


Fig. 76.—Excavators.

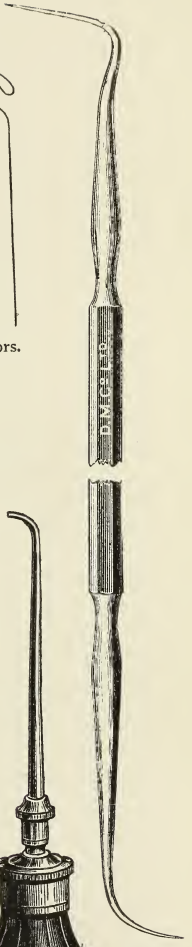


Fig. 75.—Probe.

Fig. 72.—Conveying Forceps.

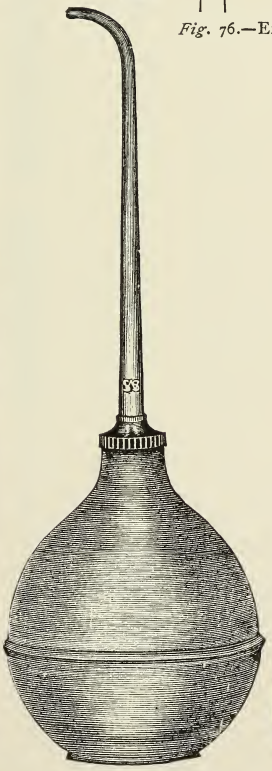


Fig. 74.—Hot-air Syringe.

Fig. 73.—Water Syringe.

INSTRUMENTS FOR FILLING TEETH.

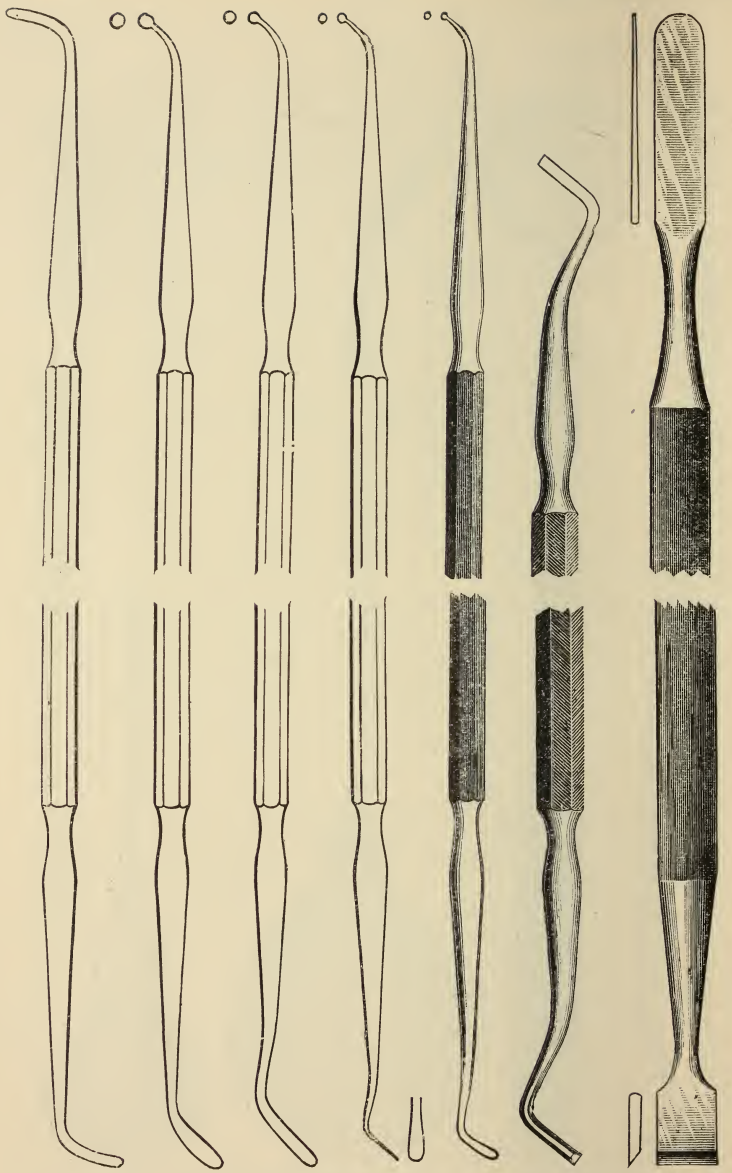


Fig. 77 Flat and Ball-ended Pluggers. *Fig.* 78.—Enamel Chisel *Fig.* 79. Spatula.

INSTRUMENTS FOR FILLING TEETH.

cement, and a spatula (*Fig. 79*) for use with this, and having a chisel end for cleaning the slab; articulating paper; and a spirit lamp. The rough total cost of all these, including mixing slab and Arkansas stone for sharpening instruments, will be about 40s.

To prepare a tooth for the reception of a temporary filling, first with the wet-bulb syringe gently wash out the cavity with a warm solution of weak soda bicarb. (5 or 10 grs. to the ounce) to dislodge *débris* and mucus. Next, warm the mirror over the spirit lamp till the moisture which is seen to be deposited at first is driven off (this ensures no clouding from the breath), and either use it to throw light into the cavity or as a reflector, that is, to reflect the image of the cavity to the operator; then with the conveying forceps pick up a suitably-sized pledget of absorbent cotton wool and mop out the cavity; repeat this till a good examination can be made of the cavity. If the patient salivates inconveniently, roll up wads of non-absorbent cotton wool and place one in the buccal fold over the opening of Stenson's duct, and another in the floor of the mouth under the tongue to occlude the ducts of the sub-maxillary and sub-lingual glands.

When an examination can be made, determine whether the shape is such that a filling will be retained, and whether the pulp is alive, whether exposed or not, or whether dead. Obviously a saucer-shaped cavity will retain nothing except such a filling as will adhere of itself—and *no* filling will adhere to a damp surface. To retain a filling, the base, in some direction, must be larger than the mouth, but in some cases a mastiche dressing may be successfully placed by using an adjacent tooth as a base against which to wedge it in. If the cavity will retain no filling, take one of the excavators (see that the edge is sharp—an Arkansas stone is the best to sharpen it on), hold it between the thumb and next two fingers of the right hand, steady the whole hand by resting the third or fourth finger on a convenient tooth, and begin excavating the decayed dentine *at the margins of the cavity;* with the left hand hold the mirror in the mouth in such a way as to both give light (or reflect) and keep the cheeks or tongue out of the way. The best way of using the excavators is to make short, steady strokes by rolling the handle between the fingers and thumb; the softened dentine, which is all that need be removed in preparing for a temporary filling, will then often be found to come away in large flakes. Sometimes examination of the cavity will show that enamel must

be broken away before access can be obtained to insert any filling. In such a case, with an enamel chisel break away only so much enamel as will allow of free entry to the cavity—leave all that is possible to protect the soft temporary filling. In using the enamel chisel, apply the force in the same plane as the enamel fibres (roughly, these run at right angles to the surface of the crown at any part), which will then flake off, especially if first scratched. The edge of the chisel must be kept sharp, and a *point d' appui* taken with the thumb to prevent slipping. When the softened tooth-tissue at the margins has been cleared away, examine the base ; and if it appears that softened dentine may be removed without uncovering the pulp, this may be done ; but if there is any doubt it is better to leave it, disinfecting as described below.

Having the cavity now prepared, dry it well, using small pledgets of absorbent wool with gentle pressure, and while still dry mop it out with oil of cloves or creosote on a cotton wool pledget, which has been passed through the flame of a spirit lamp to warm it. If the cavity has been well dried, the oil or creosote will soak in and act as a disinfectant, and to some extent as an analgesic.

Next, decide what filling is to be put in ; on a masticating surface the most lasting is an osteo-plastic filling ; in a situation where no pressure can reach, *e.g.*, the neck of a tooth, guttapercha will last longer ; where speed of introduction is a consideration, or where there is no possibility of keeping even moderately dry, a mastiche filling must be used ; but it must be remembered that these get rapidly foul and must be changed at least every day. When the retention of the filling must depend on the adhesive properties of the material used, an osteo-plastic filling is the only one that can be employed, and the tooth surface must be dry.

To introduce a **Mastiche Filling :** Dry the cavity if possible ; take a tightly-rolled pledget of absorbent cotton wool in the conveying forceps, having a few spare rolls by ; dip it into the mastiche solution and convey it to the cavity ; place it in position, and with a larger roll make even pressure over its surface to drive it home into all parts of the cavity. The patient may wash his mouth out at once, as mastiche " sets " under water.

To make a **Guttapercha Filling :** Warm one of the flat pluggers and pick up witb it as much guttapercha as it is judged will fill the cavity, warm this over the spirit lamp till it is plastic and

can be rolled into one mass. Do not warm the other pluggers. Dry the cavity, and, if necessary, re-warm the mass of gutta-percha till sufficiently plastic (taking care it is not too hot); then with one of the cool pluggers pick it off the warm one and convey it to the cavity, where it must be pressed home and spread out as needed. When the cavity is sufficiently full, re-warm the flat plugger, and trim off the superfluous edges of guttapercha. Before finishing, make the patient bite, to see if the filling is in the way. If it is, trim some off with a warm burnisher.

To make an **Osteo-plastic Filling:** Put out some of the powder and some of the fluid on to the mixing slab, and very slightly oil the ends of the pluggers. Dry the cavity and see that it can be kept dry—an osteo-plastic filling made in a wet cavity is useless. Then with the spatula mix the powder and the liquid well till a stiff paste results; roll it into a mass, and pick the mass up on a flat plugger, warm it slightly in the spirit-flame (this makes it less painful of introduction), and press it into the cavity till the edges are well covered. Then, using round or flat pluggers as needed, mould the whole into close apposition with the walls of the cavity and trim off to a convenient shape. In a few minutes the filling will be too hard to mould any more, and must be left to "set," which will take about ten minutes. When set, try the bite, and reduce the filling if necessary by scraping with an excavator; ("articulating paper" is the best means of trying a hard filling, a soft one will be marked by the opposing tooth).

Before introducing either a guttapercha or osteo-plastic filling, if possible, after using pledgets of cotton wool, further dry the cavity by blowing warm air into it from the air-syringe. This may be warmed by drawing in warm gases from the spirit flame, and on trial against the cheek the blast should feel only just warm. In making either a guttapercha or osteo-plastic filling, try to avoid forcing filling material over the cervical edge of the tooth.

Before introducing an osteo-plastic filling, warn the patient that it will be painful, but that the pain will soon pass off. This filling is an oxy-phosphate, and hence acid and irritating, but when well introduced, by excluding outside influences and by its somewhat caustic action, it greatly reduces the sensitiveness of the dentine. It must not, however, be left too long (three to six months time is an average for a temporary osteo-plastic filling), as the surface is eroded by the secretions of the mouth,

and the body of the filling becomes porous and absorbs moisture, eventually becoming spongy and septic, and leaving the dentine as tender as ever. If put in dry, and if the cavity has been disinfected, an osteo-plastic filling may be made water-tight, and hence may be used to *arrest caries* without removal of all carious dentine ; but if used for this purpose the edges of the cavity must be first cleared of carious tooth substance, and the filling must not be allowed to remain too long ; under a soft and septic filling as described above caries progresses rapidly.

A guttapercha filling introduced dry into a well disinfected cavity and carefully sealed at its edges, also tends to arrest caries. A guttapercha filling introduced in a place removed from attrition may last many months, but the surface becomes rough and foul, and must be trimmed off with hot pluggers.

In speaking earlier of examination of the cavity, advice was given to note whether the pulp was alive, whether exposed or not, or whether dead. A tooth with a live nerve is generally sensitive to the touch of a steel probe, especially at the cervical edge therefore take the rectangular probe and begin by making gentle pressure with the probe, increasing it gradually if no pain is caused. Remember that a tooth which is painful as a result of septic peri-odontitis is also painful on pressure, and eliminate this by gently tapping on the crown and by enquiring of the patient whether the tooth feels longer than its fellows ; a tooth in which the pulp is just dying is painful both on tapping and biting, and on using a probe to touch the pulp. If satisfied that the pulp is alive, run the probe gently over the base of the cavity, and note any specially tender spot. Remembering that the pulp reproduces in miniature, but with more prolonged cornua (corresponding to the cusps), the crown of the tooth, determine whether such a point is an exposure of the pulp—by its painfulness, by its position, by perhaps the feel of an edge, by its appearance ; but remember that unless freshly exposed or lacerated a pulp does not appear red or vascular ; it is more likely to look whitish or as if covered with pus cells, contrasting, however, with the (generally at least) slightly brown colour of decayed dentine. When it has been decided what state the pulp is in, one or other of the fillings above described may be used according to circumstances—as position, time the filling is wanted to last, taken in conjunction with the state of the tooth.

Over an exposed nerve a pledget of cotton wool soaked in oil of cloves, creosote, or carbolic acid may be placed and over this

a *lightly* applied mastiche dressing ; pressure must be avoided. But if it is desired to kill the pulp, then some Baldock's paste on cotton wool, or "nerve devitalising fibre" (to be obtained at the Dental Manufactory, 10, Lexington Street, London, W.), should be placed on the exposed pulp, over this a small metal cap to take off pressure, and over all a guttapercha filling. The metal caps may be bought ready made, or may be made by cutting a small piece to fit the floor of the cavity from the metal cap of a wine bottle, and punching it concave. The pain of "killing a nerve" is often due to pressure of the filling employed to retain the devitaliser. As devitalisers all contain arsenious acid, it is most important to be very careful to introduce the guttapercha so that none of the devitaliser can escape, especially at a cervical edge ; extensive necrosis may follow such an accident.

When a pulp is dead, whether setting up inflammatory trouble or not, it is best to clear out as much of the floor as may be, then to dry the cavity, and after introducing a pledget of cotton wool soaked in creosote, put a guttapercha filling over it. The guttapercha must not be pressed tightly down in the centre, and if the creosote oozes up round the sides, wipe it away and seal the guttapercha with a heated plugger. The public is apt to think a filling the panacea for all toothache. Obviously to fill over a septic pulp or directly on an exposed nerve, is as bad a thing as can be done. "Toothache" also occurs in teeth entirely free from caries ; in pyorrhœa alveolaris, in which disease there may be pain from eroded necks of teeth ; from peri-odontitis ; or from para-dental abscess (the pulp remaining alive).

Tumour of the Tooth pulp (dentine forming organ).—Dr. Pont[2] reports what he thinks to be a case of tumour of the pulp of the second upper right bicuspid in a man of thirty-five. The patient complained of persistent pain in the tooth. Careful examination with a magnifying glass showed no trace of caries, but examination by transillumination showed a "colour like that of red wine," contrasting strongly with the colour of the neighbouring teeth. On opening up the tooth with the aid of a drill and an enamel chisel, the whole shell of enamel came away, exposing a mass of dark red, almost painless, soft tissue. The dentine had completely disappeared from the coronary portion of the tooth. Microscopic examination is not yet published.

References.—[1]*Trans. of the Third Inter. Dental Cong.* ; [2]*L'Odontol.* Sept. 15, 1902.

TESTICLE (Tuberculosis of the). *Priestley Leech, M.D., F.R.C.S.*

Horwitz[1] presented to the American Association of Genito-Urinary Surgeons an analysis of 96 operations for the relief of tuberculosis of the testicle. His conclusions were as follows: (1) A primary tuberculous infection of either the epididymis or testicle may occur, the former being by far the more common; (2) A primary infection of the epididymis, secondarily that of the testicle, is more common than the descending one; (3) Primary involvement of either the epididymis or the testicle usually takes place through the circulation, the soil being predisposed to the location of the bacillus either by a slight traumatism, or by some infecting condition which has given rise to inflammation of the organ, most commonly an attack of gonorrhœa; (4) Secondary tuberculous involvement of the epididymis or testicle sometimes follows a primary focus of the disease in the other portions of the body, more commonly in those organs that are in direct anatomical connection with the sexual glands, *e.g.*, seminal vesicles, prostate, urethra, bladder, ureter, or kidney; (5) The invasion of the testicle may be rapid, with acute inflammatory symptoms, an abscess soon developing; or the onset may be chronic, the symptoms simulating those of chronic syphilitic orchitis or malignant disease of the organ; (6) Employ the tuberculin test in doubtful cases where only one focus of the disease is known to exist; (7) In doubtful cases if hydrocele fluid be present, examine the fluid for tubercle bacilli, and let inoculation experiments be made; (8) Injections of iodoform or chloride of zinc are not to be recommended; (9) In all cases of encapsulated caseous nodules quiescent in the epididymis, epididymectomy should be performed; (10) Epididymectomy with resection of the vas deferens is not followed by atrophy of the testicles or sexual weakness; (11) Drainage of tuberculous abscesses followed by the use of the curette is only to be employed where radical treatment is not permissible, as it is attended with more or less danger and is generally unsatisfactory in its results; (12) Where the epididymis is alone involved a resection of the diseased structure is all that is required; it is undecided whether the vas deferens is to be resected wholly or partially; (13) If both testicles are diseased and there is no extensive tuberculous disease of other organs, perform double orchectomy; (14) It is open to discussion whether diseased seminal vesicles should always be removed at the same time the epididymis or testicle is removed. In many cases the removal

of the primary seat of the disease is followed by a subsidence of the tuberculous involvement of the seminal vesicles, and it is wiser as a rule to wait and remove the testicles later if necessary ; (15) Hygienic and climatic influences play as important parts after operation in fortifying the constitution against further invasion as they do in other tuberculous conditions ; (16) Anti-tuberculous remedies are of great value in controlling the disease, and should be employed in conjunction with whatever surgical procedure may be necessary.

[This treatment is more active surgically than was recommended in last year's *Annual*, p. 588, and too little stress appears to be laid on general treatment for tuberculosis.]

Ernst Haas[2] gives the results of 115 cases of tuberculosis of the testicle for the last fifty years in von Brun's clinique. The article is a good one, and short notes are given of all cases. From an analysis of the cases he comes to the following conclusions : In 13 cases a contusion of the diseased testicle preceded the outbreak of tuberculosis ; in 6 cases gonorrhœa had been present ; and chill was assigned as a cause in 6 cases. Taking contusion and chill together, 19 cases, or 16·5 per cent, had these two conditions as etiological factors, but out of these 19 cases, in 7 there was hereditary tuberculosis. In 24 cases (20·9 per cent) there was a history of hereditary tuberculosis. From lack of rectal examinations no conclusions can be drawn as to the presence of tuberculosis of the prostate or vesiculæ seminales in these cases, but the results of healing so far go against the supposition that the prostate and seminal vesicles are often affected with tuberculosis at the same time as the testicles. He recommends high division of the cord. In 26 per cent of the cases there was tuberculosis of other organs. In cases where the bladder or kidney is affected with tuberculosis the prognosis is a bad one.

Simultaneous disease of both testicles is rare (3·5 per cent circa) ; in only 38 per cent of the cases was there an earlier or later infection of the second testicle. Where the diseased testicle is removed the second testicle becomes affected in only 26·7 per cent of the cases. Where the disease is confined to one side, castration of the diseased organ gives 44·6 per cent of enduring cures. In cases where both testicles are diseased and both are removed, 56·7 per cent are finally cured. Where one testicle only is removed the procreative power is retained. In none of the cases where both testicles were removed did there appear

any of the dreaded phenomena which have been so often described. Latterly (during the last three years) the results have been better than at first, both as regards the mortality as well as permanent cure.

REFERENCES.—[1]*Jour. Amer. Med. Assoc.* May 10, 1902; [2]*Beitrage z. klin. Chir.* Bd. xxx, Heft 2.

TESTIS (Imperfect descent of). *Keith Monsarrat, F.R.C.S.E.*

Mr. McAdam Eccles,[1] in his Hunterian lectures on the anatomy, physiology, and pathology of the imperfectly descended testis, classifies the causes of arrest as follows: (1) Conditions associated with the mesorchium; (2) Conditions associated with the testis and its component parts; (3) Conditions associated with the gubernaculum; (4) Conditions associated with the cremaster; (5) Conditions associated with the route along which the testis has to pass; and (6) Other conditions, such as the pressure of a truss obstructing its passage. The conceivable causes of the condition are therefore many; several of those given by writers are only conjectural. As a rule the imperfectly descended organ is smaller than its normally placed fellow, and those which have been microscopically examined have proved noticeably divergent in structure from a normally placed organ, and functionless as far as concerns spermatogenesis. The imperfectly descended testis is specially liable to certain pathological conditions, the most important of these being traumatic orchitis and strangulation from torsion of the cord. When lodged in the inguinal canal or immediately outside the external inguinal ring the testicle is very liable to injury from blows or pressure, and attacks of inflammation from this cause are exceedingly likely to be followed by atrophy and degeneration.

In regard to torsion of the cord, Mr. Eccles mentions the following predisposing causes: An abnormally long mesorchium, a practical absence of a mesorchium, action of the gubernaculum testis, a congenital twist of the cord, a roomy tunica vaginalis, and a flattened condition of the imperfectly descended organ. As exciting causes he enumerates muscular effort, a mechanical twist, the action of the cremaster, the application of a truss, attempts at the reduction of a hernia by taxis, and possibly the enlargement of the organ at the approach of puberty. The early diagnosis of this condition is of much importance, as the accident is a very fatal one to the integrity of the organ. It is well known that it simulates closely the symptoms of a strangulated hernia, and has been mistaken for this where the absence

of the testis from the scrotum has been overlooked. The symptoms are, more or less sudden pain in the groin, and the presence of a firm, acutely tender swelling, considerable constitutional disturbance, and vomiting. In the absence of a history of injury, such symptoms indicate operative interference at the earliest possible moment if the organ is to be saved.

It has not been definitely shown that the imperfectly descended testicle is specially liable to be the seat of sarcoma, but this statement is made by several writers. By far the most common associated deformity is hernia. Mr. Eccles mentions 856 cases of the association in an examination of 48,000 cases of hernia. The present writer has suggested[2] from some observations on 28 cases of imperfectly descended testicle in children, that it is with the inguinal and inguino-scrotal forms that it is especially associated. Of 13 cases in which the testis lay immediately outside the external ring, 4 had herniæ; of 8 where the testis was in the canal, 4 also had herniæ; on the other hand, in 6 cases where the organ had not entered the canal, no herniæ were present. The error of mistaking a testicle retained in the inguinal region for a hernia is probably very rarely made nowadays, but those of large experience state that it still occurs.

Indications for Treatment.—Under what circumstances should this deformity be left alone, or, on the other hand, be subjected to treatment? It should be left alone when the patient is under two years of age, when it is giving rise to no symptoms, and when it is uncomplicated. The indications for treatment also fall under three parallel heads. In regard to the first, what is to be done where the persistence of the deformity appears to offer the only indication for interference? No general rule as to age can be framed which is applicable to all cases, especially as we are without any considerable series of observations on the question of the late descent of the organ. Those that are available do not enable us to say in any given case that because such and such an age has been passed we cannot expect any further natural descent. However, it is certain that the older the patient the less is further descent to be expected, and that retention of the organ after the age of three years is a condition that calls for careful and periodic observation. If a child of this age is kept under observation for a period of six months, and if during this period no advance of the testicle towards the scrotum is ascertained, the question of operative interference should be considered. It has not been shown that manual

traction is a proceeding of any value, and in unskilled hands it is dangerous.

In the second place, treatment may be necessitated by such complications as repeated injury to the organ in its exposed position, or by complaints of local discomfort and pain without external trauma.

Thirdly, the presence of certain complications, more especially hernia, will indicate the advisability of undertaking radical treatment, dealing with both conditions.

The radical treatment of imperfectly descended testicle aims at bringing the organ to its normal situation in the scrotum. The results are sometimes excellent, sometimes disappointing, and in some cases it is anatomically impossible to bring about the desired transplantation.

In cases that are successful, the effect on the growth and development of the organ is very good; a testicle that was before smaller and less firm than its fellow has in several cases after operation been observed to attain perfectly normal conditions. That the experience of some surgeons is not favourable will be gathered from the following[3]: "Writing in 1901, Mr. Jacobson wishes to state that his later experience tends to show that this operation (orchidopexy) is of very little value. Supposing a scrotum to be present, everything depends on whether the cord is long enough to allow of the testis resting in the scrotum without any tension. As a rule, to which there are few exceptions, this is not the case. Out of 7 cases he has had only one permanent and real success." Others with equal experience continue to advocate the operation, *e.g.*, Lucas-Championniere.[4]

Of the points of technique referred to, next to the length of the vascular attachments that of chief importance is the thorough isolation of the essential structures of the cord. The artery must be identified with the greatest possible care, and together with its accompanying veins preserved from damage; the vas deferens is of course of equal importance. When these have been isolated, all muscular and fibrous attachments to the neighbourhood of the ring and in the canal must be separated, dissected out, and removed. If this is done carefully there will be much less likelihood of the testicle being retracted again after transplantation. Should the vas deferens be so short as to prevent the testis being brought into position, the well-known manœuvre first practised by Wood, of dissecting the globus

major from the body of the testis and turning the latter head downwards, may be adopted.

The following method of operation has been recently advocated by Prof. Eugen Hahn.[5] The forefinger is pushed down to the bottom of the scrotum from the inguinal wound, making a channel, and a small incision made through the scrotal skin ; the testicle is brought down the channel and through the incision. It remains here for about seven days, when adhesions have formed around it. The incision is then slightly enlarged, the skin undermined and brought together over the testicle, which thus lies in a pocket. Hahn reports satisfactory after-results from this method of fixing the organ, and has been in the habit of employing it since 1888.

Mr. Eccles has lately advocated the plan of returning to the abdomen a testicle which cannot be satisfactorily brought into the scrotum ; the same suggestion was made in 1899 by Ceccherelli.[6] It cannot be considered justifiable to remove an ectopic testicle which is free from disease. Dawbarn[7] recommends the making of a bed behind the abdominal muscles for an organ which cannot be brought into the scrotum.

REFERENCES.—[1]*Lancet*, vol. i, pp. 569, 722, 1902 ; [2]*Liverpool Med. Chir. Jour.* March, 1902 ; [3]*The Oper. of Surg.* 4th edit. vol. ii, p. 485 ; [4]*Bull. de l'Acad. de Méd.* Tom. xliii, p. 24 ; [5]*Cent. f. Chir.* Jan. 4, 1902 ; [6]*Gaz. deg. Osped.* No. 141, 1899 ; [7]*Med Rec.* May 1, 1895.

THORAX (Resection of). *Keith Monsarrat, F.R.C.S.E.*

In addition to resections of part of the bony wall of the thorax for exposure of the pleura, pericardium, or the anterior mediastinum (see under headings), a considerable number of cases of thoracic resection for tumours are on record. In 1899 Parham[1] collected and analysed 82 such cases. He divided them into two series : (1) Those in which the pleura was not opened ; (2) Those in which it was opened either deliberately or by accident. In table form the cases show as follows :—

	Series 1	Series 2
Number	27 ...	55
Deaths from operation	7 ...	16
Recovered from operation ...	19 ...	39
Result unrecorded	1 ...	—
Per cent mortality	26 ...	29

The author finds an explanation for the somewhat curious fact that the mortality is about equal in the two series, in that

a larger proportion of the cases of series 1 were operated on in the pre-antiseptic days. The most common growths for which operation has been done is chondroma, many being in reality chondro-sarcomata. The chief danger attached to the operation is that of pneumothorax. Parham tabulates 41 cases where the immediate effects of opening the pleura were stated. Of these 16 were marked by little or no disturbance; 10 showed moderate disturbance; 15 had symptoms of a critical and dangerous character, severe collapse, and respiratory embarrassment. The chief factors in the causation of these serious symptoms were the extent of the opening and the length of time it remained patent. It appears that such serious disturbance has occurred most frequently in operations on the right side of the chest. Delagénière[2] recommends as follows when the pleura has been accidentally or intentionally opened: The opening is caught up and air is allowed to enter slowly, the anæsthetic being discontinued; if under these circumstances the patient's condition becomes embarrassed, the opening must be closed either by tampons or by seizing the lung and bringing it forward into the opening. When the breathing becomes natural again air is to be again allowed to enter with the same precautions. According to Delagénière, the chief danger lies in the suddenness of the lung collapse. Amburger[3] has recently related 6 cases of thoracic resection, 2 for sarcoma of the sternum, 2 for mediastinal growths, and 2 for growths arising from the ribs. With the exception of one case, the pleura was opened in each, and in one a portion of the diaphragm had to be resected. Dangerous symptoms did not arise in any case from the pneumothorax, but in 4 there was a subsequent inflammatory process in the pleura with two fatalities from this cause; in 3 of the cases recurrence occurred; one was permanently successful. Amburger finds 56 cases in the literature of removal of tumours of the thoracic wall with opening of the pleura, which he analyses as follows: In 17 death followed soon after operation, in 20 there were recurrence, 19 remained well as long as they were under observation. To avoid permanent collapse of the lung he recommends fixation to the chest wall. In 11 cases part of the lung was resected, with three recoveries. Injury of the pericardium does not appear to have been a dangerous complication, and involvement of the diaphragm is not to be looked upon as an absolute bar to operation. Trzebicky,[4] among 5 similar cases, relates the history of one, aged forty-seven, with

a chondroma encroaching on the diaphragm; the latter was partly resected, and both the left pleural cavity and the peritoneum were opened; by stitching the diaphragm to the muscular tissue of the chest wall the two cavities were shut off from one another; the patient survived. Pneumothorax gave rise to no particular difficulty in any case; the opening was tamponed or sutured, and in the latter case an iodoform gauze drain was introduced into the depth of the wound as a precaution.

Access to the anterior mediastinum has been obtained by several different methods. Trephining as a rule gives too little room; removal of a portion of the margin of the bone with some parts of the adjoining costal cartilages is an improvement; but there are other later procedures which give freer access. Bardenheuer,[5] in 1886, recommended osteoplastic resection of the manubrium by the following method: A transverse incision crosses the root of the neck, extending on each side over the inner end of the clavicle; from the centre of this a vertical incision is carried downwards over the sternum; through the upper incision the muscles and fasciæ are detached from the manubrium and clavicles, and the right clavicle and first and second ribs are divided. The manubrium is then divided about an inch below its upper border and turned outwards. Bardenheuer has used this methed for the removal of tumours and for ligature of innominate artery and vein, and the first part of the subclavian.

The procedure of Milton appears, however, to afford better access to the mediastinum.[6] He has used it on two occasions; on the first for the removal of a tuberculous tumour from the anterior mediastinum, on the second for the removal of a foreign body from the bronchus. In the latter case an incision passed from the middle of the neck along the centre of the sternum to the ensiform cartilage, the tissues were separated from the sternal notch and the fingers passed behind the bone; the sternum was then sawn through along its centre, and the two halves dragged apart with strong retractors, a space of about 4 cms. being obtained. Milton looks upon sepsis as the chief risk of the operation; in neither of his cases did any danger from hæmorrhage or shock arise. The mediastinum is occupied by very thin loose fibrous tissue, with imperfect blood supply, and probably very little vitality, affording very little resistance to septic invasion and great facility for absorption. If there is a danger of sepsis from the nature of the condition for which

the operation is done, drainage is best provided for by making special holes through the sternum. According to its originators the operation is one that is only justifiable when life itself is in danger, when there is a good chance of removing the disease, and where no less dangerous route or method is available.

REFERENCES.—[1]*Monograph*, New Orleans, 1899; [2]*Arch. Prov. de Chir.* No. 12, 1901; [3]*Beitrage z. klin. Chir.* Bd. xxx, Hft. 3; [4]*V. Langenbeck's Arch.* Bd. lxvii, Hft. 2; [5]*Deut. Med. Woch.* No. 40, 1885; [6]*Lancet*, vol. i, p. 242, 1901.

THROMBOSIS OF VEINS. *Priestley Leech, M.D., F.R.C.S.*

Pearce Gould[1] draws attention to a form of chronic spreading thrombosis which he thinks is allied to arteritis obliterans, and to which he would attach the name of *endophlebitis obliterans*. He has only noticed this condition in the superficial veins of the lower extremity. There is first a little stiffness in the leg, hardly amounting to pain, and on feeling the part a slightly tender "knot" is felt. Slowly the "knot" lengthens into a firm cylindrical cord, which can be rolled under the skin, or it may be fixed to the skin by periphlebitic œdema. This induration slowly extends up the leg; he has seen it extending from the ankle to the groin.

The treatment by rest is very unsatisfactory; it may entail several months of idleness. **Excision** of the thrombosed vein, except at its earliest stage, is a rather troublesome and wholly unnecessary procedure, but excision of a portion of the vein a little above the evidently diseased part, effectually stops the spread of the trouble.

REFERENCE.—[1]*Lancet*, June 7, 1902.

TIC DOULOUREUX. (See "Neuralgia, Trigeminal.")

TONSILS. *W. Milligan, M.D.*

Local Anæsthesia.—In a further note upon the means of producing effective local anæsthesia in the ear, nose, and throat, H. Gray[1] recommends making: (1) A 20 per cent solution of **Cocaine Hydrochlorate** in rectified spirit, and (2) A 15-20 per cent solution of **Eucaine** in anilin oil. Before using, solution No. 2 is well shaken up (as it does not form a perfect mixture), and 10 minims are poured out, to this are added 10 minims of solution No. 1. The resulting solution is clear, and has strong penetrative and anæsthetising properties and is suitable for the painless excision of tonsils, removal of septal spurs, cauterising, etc. A small quantity of the solution should be gently rubbed

over the part to be operated upon, and a period of seven minutes given for the production of complete anæsthesia.

Tonsillitis.—Wells[2] reports favourably upon the action of **Thiol** in cases of acute tonsillitis. He recommends the daily application of a 10 per cent solution of thiol in glycerin, in conjunction with a two-hourly spraying of the affected parts with a 2 per cent solution of the same drug. The action of the drug is rapid, and helps to relieve the distressing subjective sensations. He has found thiol especially useful in gouty cases.

Dulles[3] recommends small doses of **Calomel and Soda** (gr. $\frac{1}{10}$ and gr. j respectively) every half hour. In adults he prescribes a gargle of **Boracic Acid,** but in young children he orders lime water to be given every hour. He believes that this treatment arrests the development of micro-organisms and their products.

Westheimer[4] regards follicular tonsillitis as an infectious disease with an incubation period of about four days. He recommends isolation of the patient. Relapses are frequent, and removal of tonsils does not necessarily render the patient immune. The treatment should consist of rest in bed, cold fluid diet, **Ice** locally, and insufflations of **Boracic Acid** sweetened with saccharin.

Floersheim[5] strongly advises the local application of **Tinct. Iodine** to the inflamed tonsils and surrounding area, pharynx, mouth, fauces, etc. He finds tincture of iodine to be a most powerful antiphlogistic in inflammatory conditions of the throat, its action being rapid, and its application very simple. The acute burning sensation following its application is readily controlled by gargling with warm water.

The following is recommended in cases of acute tonsillitis[6] :—

℞ Quinine Sulph gr. xlviij | Syrup, Wild Cherry ℥j
Dilute Sulphuric Acid | Water ad ℥iij
Tinct. Aconite āā ♏xlviij |

Dose.—℥j in water every four to six hours for an adult.

Locally :—

℞ Spt. Chloroformi ℥iij | Eucalyptol
Tannic Acid gr. ij-v | Glycerin āā ℥j

To be applied with a brush three times daily.

Lacunar Keratosis.—Wood[7] in a study of cases of lacunar keratosis comes to the following conclusions : (1) The disease commonly called mycosis pharyngitis leptothricia is a true keratosis of the epithelium lining the crypts of the tonsils. (2) The leptothrix buccalis maximus, the bacillus buccalis maximus

and like organisms do not possess any etiological importance, but are present simply as saprophytes. (3) The disease is probably the result of a moderate degree of inflammation of the parenchyma of the tonsil, causing an increased growth of the normal epithelium of the crypts.

Root[8] does not regard mycosis as a pre-tubercular condition. The essential point in treatment, he believes is to destroy the fungous growth by the application of various astringents and antiseptics, and to remove diseased tissue by curette, forceps, or guillotine.

Tonsillotomy Rash.—Wyatt Wingrave[9] calls attention to the occasional occurrence of a rash in patients who have had tonsils or adenoids or both removed. The rash—papular, roseolous, or erythematous—usually appears upon the second or third day, and is most frequently found upon the neck, chest and abdomen. It usually lasts for a few days, and disappears without desquamation. It produces but slight constitutional disturbance, and causes very slight elevation of temperature.

In discussing the appearances of a tonsillotomy rash, Lennox Browne[10] urges the following points:—

(1,) Clear the primæ viæ by a saline aperient before operation.

(2,) Immediately before operation, wash out the mouth, and in the case of adenoids the naso-pharyngeal vault, with a solution of **Chinosol** (1-1000), or any equivalent antiseptic.

(3,) Having used aseptic instruments, we should, beyond another aperient the night following the operation for the purpose of clearing out any blood that may be swallowed, leave the case to the *via medicatrix naturæ*.

(4,) Keep the patient in bed, in good hygienic surroundings, for two to three days, complete rest of body and voice being enjoined. In a case of adenoids, no nasal syringing should be allowed for four or five days.

Gangrene of Tonsils.—R. Fullerton[11] records two cases of primary gangrene of the tonsil, and emphasises the differential diagnosis between this affection and tertiary specific ulceration. The treatment of primary gangrenous conditions must be energetic. Large doses of **Iron** and **Quinine** should be given and **Opium** freely administered. After careful cleansing of the parts, the **Galvano Cautery** should be applied to the ulcerated surfaces.

Tuberculosis of the Tonsils.—Coakley[12] regards tuberculosis of the tonsil as of fairly frequent recurrence. After careful

cleansing with an alkaline lotion and applying cocaine, he recommends swabbing with a 25 per cent solution of **Lactic Acid** at intervals of three days, the strength of the solution being gradually increased.

Malignant Disease of the Tonsils.—Prota[13] has found sarcoma by far the most frequent form of malignant disease attacking the tonsils. Males are more frequently affected than females, and the disease is most usually met with between the ages of forty to sixty. Sarcoma is attended by less pain than is carcinoma. The evolution of a sarcomatous tumour is usually slow, and rarely attended by ulceration. The submaxillary glands are attacked at a late stage. Lympho-sarcoma is more rapid in its progress, and frequently ulcerates.

The onset of epithelioma is often very insidious, and at an early stage the prominent symptom may be *otalgia*. Early ulceration and early involvement of the lymphatic glands are common. Difficulty may arise in distinguishing early malignant disease of the tonsil, and *gumma*. Unilateral enlargement of the tonsil in an elderly subject, with early enlargement of submaxillary glands, should always excite suspicion of malignancy.

REFERENCES.—[1]*Lancet*, March 9, 1901 ; [2]*Phil. Med. Jour.* April 15, 1899 ; [3]*New York Med. Jour.* Jan. 1902 ; [4]*Jahr. f. Kind.* April, 1901 ; [5]*New York Med. Jour.* Oct. 5, 1901 ; [6]*Med. Rec.* March 2, 1901 ; [7]*Med. Bull.* Jan. 1902 ; [8]*Jour. of Laryng.* Nov. 1901 ; [9]*Ibid*, Oct. 1901 ; [10]*Ibid*, Dec. 1901 ; [11]*Lancet*, June 7, 1902 ; [12]*Jour. of Laryng.* Nov. 1901 ; [12]*Treatment*, Feb. 1902.

TRYPANOSOMA IN MAN. *James Cantlie, M.B., F.R.C.S.*

Considerable interest has been aroused by what may be taken to be a newly discovered disease in man. The attention of the profession was drawn to the subject by Dr. J. E. Dutton, at the Liverpool School of Tropical Medicine, where, on August 1st, 1902, he showed a patient suffering from signs and symptoms in all probability caused by the presence in his blood of a species of *trypanosoma*. Forde[1] gives an account of the disease, and also a photograph of the parasite as found in the patient shown by Dutton, which we reproduce (from *Jour. of Tropical Medicine*) in *Fig.* 80. The patient was first seen by Forde in the Gambia Colony on May 10, 1901, and in his blood he found a small, worm-like, extremely active parasite which was subsequently recognized by Dutton as a trypanosoma.

The symptoms presented by the patient were : Irregularly

intermittent febrile attacks, the temperature remaining above the normal (2 or 3 degrees) for a few days, and then falling below normal for a few days; the skin dry, with irregular patches of a congested or cyanosed character; puffy œdema of the face, and slightly around and above the ankles; respirations and pulse altered, being rapid and variable; heart sounds peculiarly muffled; urine and bowel excretions practically normal. In the later stages of the complaint both liver and spleen were found enlarged. Loss of weight and considerable debility, wasting, and lassitude, were marked during the progress of the case.



Fig. 80.—Trypanosoma × 1200. Found in the blood of a European.

Dutton also found the worm in the blood of a child, three years old, a native of the Gambia, but in whom no symptoms of illness were present. Manson[2] met with a patient in London whose symptoms led him to the belief that he had probably trypanosoma in his blood. Daniels[3] found trypanosomes in this patient's blood, and thereby a significant advance in the clinical recognition of the disease was made. Since then trypanosomes have been found in another patient in Africa, and the presumption is that the disease is more widely spread than had been anticipated.

The corresponding diseases of the lower animals are surra, nagana, and *mal de calleras ;* and some of the anomalous chronic fevers in man, such as kala-azar, which have hitherto defied classification, may, on investigation, prove to be due to trypanosomes in the blood.

The parasite is described by Dutton[4] as a worm-like organism, possessing a flagellum at one end, the other end being bluntly conical. Attached along one side of the body is a transparent flange-like process—the undulating membrane. The body is short and thick, and its substance granular. A highly refractile spot or vacuole is to be made out near the posterior end. The length of the parasite in stained preparations, including the flagellum, varied from 18 μ to 25 μ ; the width was from 2 μ to 2·5 μ. Dutton stained the blood-films by a modification of the method of Romanowsky for chromatic staining, devised by Dr. MacConkey. By this method the flagellum stains a light crimson. The protoplasm does not stain evenly ; it takes on a basophile reaction ; and in the protoplasm fine blue stained granules, situated chiefly around and in front of the macronucleus, are occasionally seen.

References.—[1]*Jour. Trop. Med.* Sept. 1, 1902 ; [2]*Ibid*, Nov. 1, 1902 ; [3]*Ibid.* ; [4]*Brit. Med. Jour.* Sept. 20, 1902.

TUBERCULOSIS. (See "Adenitis," "Phthisis," "Testicle," etc.)

TUBERCULOSIS OF THE SKIN. *Norman Walker, M.D.*

Lupus.—While most attention has been devoted to the **Electrical** methods of treating this disease, other remedies are not being altogether neglected. Lang[1] persists in his **Excision** methods, and Reiner reports on the cases treated in Lang's clinic. Of 74 cases, 33 were cured and did not relapse. Of 19 in which relapse occurred, 8 were cured by further excision. The method is not applicable to lupus of the mucous membranes.

Hallopeau[2] advises the use of **Permanganate of Potassium** applied on compresses in a 2 per cent solution, and he advises it in cases which "are too extensive to be amenable to phototherapy"!! Dupuy[3] reports on the results of the treatment of cases by permanganate under Butte. His method is as follows : "The face having been washed and carefully dried with absorbent wool, powdered permanganate of potassium is spread on the whole patch, if not too extensive. A piece of dry absorbent wool is then applied, and the whole is left on for a quarter of an hour. The wool is then removed, the surface washed with

boracic lotion, and a wet dressing applied. Generally a single application is sufficient." The method is only applicable in superficial cases, and not to lupus of the mucous membranes.

Scatchard[4] reports the successful treatment of a case by **Formalin.** The part having been cleansed, and dusted with orthoform to lessen the pain, equal parts of **Formalin (4 per cent) and Glycerine** were painted on. There were slight recurrences, but a further application was apparently successful, and a year afterwards there was no trace of disease.

Gunson[5] reports three cases treated by the **Peroxide Spray** with encouraging result, but the method is obviously only available for suppurating cases.

Bertarelli[6] has investigated the effects of **Calomel Injections,** and concludes that where benefit has resulted an error in diagnosis has been made, and that the supposed lupus was really syphilis.

Werther[7] treated four cases by the application of concentrated **Hot Air.** The scars left were good, but the pain is so great that a general anæsthetic is required. The method is specially recommended for lupus of the eyelids.

Fordyce[8] reports the development of malignant tumours on a patch of lupus on the arm, in which the architecture of the growth recalled the structure of a *rodent ulcer.* It is interesting to note that the original lupus patch was excised, and that the incision developed *keloid.*

Saalfeld[9] has used **Liquid Air** as an application to certain forms of skin disease, including lupus. The application of the liquid to the back of a mouse resulted in death in ten minutes. In patients it caused burning and itching, in from fifteen to thirty minutes ; an hour later a blister arose. The secretion formed a crust which remained from one to three weeks, after which the skin appeared normal. [We question whether the same effects would not have been obtained by the application of a blistering fluid.] The application to warts was apparently extremely successful, and they are reported to have fallen off in a few hours.

Erythema induratum scrofulosorum.—This condition was fully referred to in last year's *Annual.* Several new cases are reported, and the tuberculous theory of the disease seems rather to be gaining ground. Gilchrist[10] had under his care a patient, a girl aged nineteen. There was a family history of tuberculosis. A guinea-pig was inoculated and died, but not of tuberculosis,

and others inoculated were still living. The excised ulcer did not show any definite tuberculous structure, but Gilchrist does not doubt the tuberculous nature, and sensibly suggests the simplification of the nomenclature and the enrolment of all these cases under the heading of tuberculosis of the skin.

Philippson[11] supports Whitfield in the view that there are two forms of this disease, one tuberculous, and the other due to phlebitis and peri-phlebitis ; these may become tuberculous.

Hartung and Alexander[12] examined the case of a man, aged thirty, under Neisser's care. The injection of tuberculin was followed by no local reaction. Tubercle bacilli were found in the sputum, and after death there was found tuberculosis of the lungs, and of a vertebra. Animal inoculations gave negative results, but the histological examination of the excised growth showed the presence of many real tubercles.

Stowers[13] says that the **Red Oxide of Mercury** ointment produced more benefit than any other local application, and I have personally had excellent results from **X-rays.**

REFERENCES.—[1]*Wien. Med. Presse*, April 8 to May 16, 1900 ; [2]*Acad. of Med.* Oct. 22, 1901 ; [3]*Thése de Paris*, 1901 ; [4]*Brit. Med. Jour.* May 4, 1901 ; [5]*Ibid*, Feb. 22, 1902 ; [6]*Boll. Clin. Scien. d. Poliambulanza di Milano*, vol. xiv, No. 2 ; [7]*Münch. Med. Woch.* Feb. 12, 1901 ; [8]*Amer. Jour. Med. Sci.* Aug. 1900 ; [9]*Therap. Monats.* July, 1901 ; [10]*Johns Hopkins Hosp. Bull.* March, 1902 ; [11]*Arch. f. Derm.* Feb. 1901 ; [12]*Ibid*, 1902, vol. lx, p. 40 ; [13]*Brit. Jour. Derm.* April, 1902.

TYPHOID FEVER. *E. W. Goodall, M.D.*

ETIOLOGY.—It has been known for some time that the virus of typhoid fever is occasionally introduced into the digestive tract by means of oysters and other shell-fish. Nor is it difficult to understand this fact, when we call to mind the circumstances of oyster culture and consumption. But Hamer[1] has shown, by a most careful investigation of localised outbreaks of typhoid fever that occurred in Kensal Town, Lambeth, and Southwark, during September, 1900, that the disease is almost certainly conveyed by **Fried Fish.** Exactly where and how the fish became contaminated it was not possible to ascertain. It is important to observe that the heat necessary for the frying of the fish was not sufficient to destroy the vitality of the micro-organism of typhoid fever ; for there was reason to suppose that the fish were infected before they were cooked.

Firth and Horrocks[2] have quite recently published the results of an experimental inquiry into the influence of soil, fabrics,

and flies in the dissemination of typhoid infection. With respect to the growth of the bacillus typhosus in the soil, their results are not quite the same as those of Martin.[3] The latter was led to the conclusion that the typhoid bacillus had commonly only a short existence in the soil, and that it was destroyed by the products of the putrefactive bacteria which exist in most cultivated soils. Firth and Horrocks, however, believe that the bacillus typhosus is able to assume a vegetative or saprophytic existence outside the body. They show that it will live for twenty-five days in dried sand, and that it survives for a considerable time a continuous exposure to sunlight. They have also demonstrated that the bacilli will remain active when allowed to remain in a dried state on clothing for upwards of eighty days; and have confirmed the experiments of the American army medical commission in showing that flies can act as transmitters of the bacilli.

A point of importance to sanitary authorities has been investigated by Brownlee,[4] of the City of Glasgow Fever Hospital; viz., the effect of removal in a properly equipped ambulance of patients suffering from typhoid fever. Dealing with some hundreds of cases of patients, aged ten years and upwards, he found that amongst those admitted from a distance under one mile, the case-mortality was 21·7 per cent; in those admitted from one to two miles, it was 20·3 per cent; from two to three miles, 21·3 per cent; and from three to four miles, 21·1 per cent. That is to say, that as regards the ultimate recovery of the patient it did not matter what distance he was removed.

Preventive Inoculation.—Prof. Wright,[5] of Netley, has tabuated all the results of **Preventive Inoculation** that have been practised by himself and others since the method was first introduced some five years ago. We have already in the last two volumes of the *Medical Annual* described the method, and summarised some of its results. Wright's tables comprise twenty-four separate series, consisting chiefly of soldiers (regiments in India, Egypt, Cyprus, and the late war in South Africa), but included also are the inoculations of the staff of the Barming Asylum, Maidstone, of patients in the Richmond Asylum, Dublin, and of the staffs of some of the South African hospitals.

Of seventeen series in which the percentage incidence of the disease amongst the inoculated and the uninoculated could be calculated, in all except five the incidence was distinctly, and in

most considerably lower, amongst the inoculated than amongst the uninoculated; whilst in four of these five the incidence was practically the same in each class. The case mortality (fatality), which could be calculated in 21 of the series, was distinctly lower in 11, and higher in 3 of the inoculated, as compared with the uninoculated; while in 7 it was about the same in the two classes. In all of the eleven series in which it was possible to calculate the death-rate (mortality), it has been lowest amongst the inoculated. These figures certainly afford a strong *prima facie* case in favour of inoculation, both with respect to prevention amongst those exposed to infection, and to mitigation amongst those who after all contract the disease; for it must be emphasised that it is not claimed for inoculation that it is an absolute protection for every individual who is submitted to the process, any more than it can be said that an attack of typhoid fever itself will absolutely render the patient safe from a second attack.

Treatment.—In this disease our practice must be based partly on general experience, partly on our knowledge of the particular patient concerned. In the space at my disposal it will not be possible to enter into the whole subject of the treatment of typhoid fever and its complications. I propose, therefore, to limit myself to a consideration (1) Of the diet; (2) Of the treatment of the febrile symptoms, and (3) Of the treatment of one or two of the more serious complications, especially those which are peculiar to the disease.

(1,) *The Diet.*—There is no doubt in my mind, nor I suppose in the minds of most of us, what should be the diet during the febrile period of the disease; it must be something easily digested and easily absorbed. During this period the patient has no appetite, and the dry state of his mouth will prevent his dealing with solid food, even if one wished him to have it. Therefore **Milk** is undoubtedly the best form of nourishment, and it should be given, diluted with water, in small quantities at frequent intervals, two to three pints in all in the twenty-four hours. In severe cases, where the patient is but half conscious and has not the slightest appreciation of taste, I think milk is sufficient. The amount to be given varies with each individual, and must be ascertained by a daily inspection of the stools. If undigested clots of milk are to be seen therein, the patient is either having too much, or it is not sufficiently diluted. But in the case of patients suffering from milder attacks, whose sense of taste and appreciation of food is not lost, a strictly

milk diet is apt to become very monotonous, so that the diet must be varied. **Cocoa, Sago, Arrowroot, Corn-flour,** (these being made with a large proportion of milk), the yolk of one or two **Eggs, Beef-tea, Bovril, Brand's Essence,** and such like may all be given ; and the milk may be flavoured with tea or coffee. I have known more than one patient who has turned against or refused milk, get on very well, without a murmur, with cocoa and milk. But while the patient's diet may in this way be varied, care must be taken that he is not overfed, even with slops. Of course in hospital practice there is no danger of this, but I suppose that it might be present in private practice if trained nurses were not being employed. If, in spite of his two or three pints of liquids a day, the patient is thirsty, he may be allowed ice to suck, or water, or lemonade (preferably made with fresh lemon juice), to drink. In some cases where undigested milk or other food is being passed in the stools, it will be found that further dilution or diminution of the milk does not put an end to this condition. This especially occurs in cases where the number of stools is upwards of four in the twenty-four hours. I have found the best way to treat such cases is by **Pre-digesting** the milk. I use for this purpose **Liquor Pancreaticus** (Benger's). Dr. F. J. Smith advocates the absolute prohibition of all food whatsoever for twenty-four hours. Vomiting (which, however, is not common apart from peritonitis), is also best met with the same measures. Norway[6] has found the following mixture useful in aiding digestion and in relieving thirst :—

℞ Essen. Pepsin (Amour) ℥ss ad. ℥j Acidi Nitro-hydrochlorici Dil. ♏ x	Glycerini ♏ xx Aquam ad ℥ss

The half-ounce to be placed in half a tumbler of water and sipped or taken as desired to relieve thirst.

Prideaux Selby[7] strongly advocates the use of **Whey** instead of milk in all cases of typhoid fever. He argues that in many cases milk is turned into hard curds in the stomach, which are not properly digested, and by irritation and putrefaction give rise to harmful results. Whey can be prepared as follows : "To each quart of new milk stir in two teaspoonfuls of rennet. Put it into a pan and warm slowly till it curdles. This takes about twenty minutes. Break up the curd, and strain the whole through fine muslin." Cream can be added to the whey if required. The whey can be made palatable by the addition of tea or coffee. If it is sterilised, it is advisable to give the patient some lemon

juice to prevent scorbutic symptoms. Pridham,[8] also gives an account of some cases in which whey was used instead of milk, apparently with advantage.

Towards the end of the febrile period, when the temperature is approaching the normal and the tongue is becoming clean, the patient will often ask to have more food, I do not care, however to alter the diet very materially just yet, but I allow rather more of what he has been taking and in a slightly altered form. Thus, the eggs may be lightly boiled or poached, or be given as custard; the farinaceous foods may be served more thickly, and a few small cubes of stale bread, well boiled in milk, may also be allowed. But anything more solid I neither permit nor advise, till the temperature has been normal for a week and any looseness of the bowels has ceased. I then order three or four thin slices of bread and butter and a couple of ounces of pounded fish. The amount may be increased daily, and after another week pounded chicken or meat may be substituted for the fish, and so gradually the patient may be got on to ordinary diet.

The question of **Alcohol** is most conveniently discussed under the heading of diet. Alcohol may be ordered as a beverage, or prescribed as a drug, either for its stimulating effects on the circulation, or its sedative action upon the central nervous system. If your patient has been in the habit of taking his claret, hock, whisky, beer, or whatever it may be daily, then he should be allowed to continue it during an attack of typhoid fever; otherwise typhoid patients do not require alcohol except as a drug. Even then, I mean when it is given as a stimulant especially, I am sure it is not wise to give it in large quantities. It is seldom I order more than six ounces of brandy a day (*i.e.*, twenty-four hours). I believe you may do patients harm and retard convalescence by a too free exhibition of alcohol, more especially if it be given in the form of spirits. A man was recently admitted to the hospital under my care whose condition puzzled me for several days. His temperature was by no means high, 101° to 102° F., yet he lay prostrate and low in the bed, with marked muscular tremor, required shouting at to rouse him, kept muttering away to himself, and had retention of urine; his tongue was still much furred, and his pulse dicrotic. From the account given of the duration of his illness before he came to the hospital, and from the lowness of his temperature, he ought not to have been in such a state as he was. But in an interview I had with his wife a few days after his admission, she informed me that for

several days before that time he had been taking ten ounces of brandy a day, and this seemed to me largely to explain his condition. He was some days in recovering from the torpid, prostrate state, but then quickly began to mend. With respect to stimulation every case must be treated on its merits, and though alcohol is of great value as a stimulant, yet in really severe cases of typhoid fever I prefer **Camphor,** given in the form of the spirit, 10 to 20 minims in a little port wine every three or four hours. **Strychnine,** either by the mouth or hypodermically, is also a valuable cardiac stimulant.

(2,) *Treatment of the febrile symptoms.*—Though the temperature is by no means the only symptom of fever, yet it is a fair indication of the severity of the case. If the temperature continues to be above 102·5° for many hours together, some measure should be taken to reduce it. There are several methods of doing this. I will enumerate them in what in my opinion is the order of their efficiency : baths, wet packs, sponging, cold air, drugs. Sometimes it is beneficial to combine drugs with one of the other methods.

When I talk about the treatment by **Baths,** I do not necessarily mean *cold* baths. In the strict Brand's treatment a bath of from 65° to 70° F. is given every three hours when the rectal temperature is 102·5° or over, and the patient is kept in the bath fifteen to twenty minutes. Of Brand's method Prof. Osler, who is a strong believer in it, writes as follows : " The cold-bath treatment carried out in all its details is exceedingly onerous, particularly if there is a large number of cases in the hospital at the same time. It is, moreover, to a very considerable majority of the patients excessively disagreeable, and at least nine out of ten of our patients have complained bitterly of it. So harsh does it often seem, that I would not suffer it in my wards for a day, did I not feel sure that under its systematic employment the death-rate in the disease was definitely lowered." In addition to the objections mentioned by Osler, there is the objection that collapse is occasionally produced. Yet Hare, another advocate of this treatment, who had a very large experience of it at Brisbane, Queensland, declares in his book on the subject that all these objections are groundless. An explanation of this extreme divergence of experience is to be found in the fact that Hare did not employ the cold-bath treatment in all its strictness. The climate of Brisbane is so warm during the typhoid fever season, that it is difficult without a large expenditure of ice to

keep the temperature of the baths below 70°, so that they were often 75° to 80°. Consequently Hare really made use of a modification of Brand's method. His results, however, were just as good as those of Brand, Osler, and others who employ the strict treatment. So that one is led to ask, Why submit patients to the unpleasant method of Brand, when the much more agreeable modification is equally efficacious ? I therefore use the modified form of bath. Indeed in many cases I have given baths of from 80° to 90°, and as far as I can judge with good results. With these **Warm or Tepid Baths** there is no necessity to stimulate or rub the limbs of the patient while he is in the bath, and collapse is very unusual. The patient should be kept in the bath for from ten to twenty minutes.

The cases which respond best to the bath treatment are the toxic ones. The effects produced are : reduction of temperature, stimulation of the circulation, cleansing of the mouth and tongue, and quieting of the cerebral centres. As there may be some difficulty in giving a bath in private practice, I draw attention to what appears to me to be a very simple form of bath, which could be quickly made. It is described by Dr. Bull, of Auckland, New Zealand, as follows[8] :—

" A piece of mackintosh sheeting, 8 feet by 4 feet, is taken ; the sides are looped to receive stretcher poles ; the latter should be at least 8 feet long, and 1½ inches in diameter. In order to apply the bath, for example, in the case of a patient with enteric fever, lying on his back in the centre of an ordinary hospital bed, the patient is gently semi-rotated so that he lies, say, on his left side and near the edge of the bed ; the mackintosh sheeting, half rolled up, is introduced under him in the same way as a draw sheet ; he is now moved again on to his back, and thus lies in the centre of the sheeting. The stretcher poles are now run through the looped sides of the sheeting, and secured to the ends of the bed, if rounded, by a simple sling, if square they rest on them. If the head and foot of the bed are not raised, a simple support of wood for the stretcher poles to rest on is all that is necessary. A pillow is now introduced under the patient's head, beneath the mackintosh, and the sheeting at the foot is secured by a safety pin. The bath is now ready, and water of the required temperature can be introduced, in sufficient quantity if necessary to cover the patient's body entirely.

" When the bath is over, one of the stretcher poles is drawn out, and the water allowed to flow into a receptacle at the side

of the bed ; this it does very readily if the bed be slightly tilted. The second stretcher pole is now drawn out, and the mackintosh sheeting removed in the reverse way to that in which it was placed beneath the patient.

" This form of bath, which has been in use at the Coromandel Hospital for several years, is thoroughly efficient, and possesses the following advantages : Cheapness, simplicity of construction ; it can be applied by one person, though two are preferable ; is not regarded by the patient or his friends with the same suspicion as a moveable metal bath (a valuable point in private practice) ; can be applied to any form of bed ; is very portable ; and it can be used with very slight movement of the patient (simply by one semi-rotation of the body before the bath, and a second after it)."

The contra-indications to the bath treatment are : marked cardiac failure, peritonitis, and hæmorrhage. Children do not stand cold baths at all well, but there is no objection to giving them warm baths. Old age is also a contra-indication. Baths can be safely given to a woman during menstruation. Lung complications are benefited by bathing, with the exception of considerable pleuritic effusion.

I do not propose to discuss the question of the manner in which baths act to produce a beneficial result. It is certainly not entirely by reducing the temperature. Occasionally, indeed, one sees patients who, while they present the symptoms of fever to a marked degree, yet have no continually high temperature ; and the bath treatment will benefit these persons. I may mention, however, that according to Roque and Weill the toxicity of the urine is increased as long as Brand's treatment is being carried out ; and the inference is that the treatment assists in the expulsion of the toxic products by the kidneys.

Next to baths, the most efficient method of employing water is by means of **Sheets** wrung out of water at about 80°. The patient may be kept in the pack from a few minutes to three or four days. When the pack is continued for a long period the sheets should be wrung out of water at the normal temperature of the body. To keep the sheets moist they may be frequently sprinkled with water, instead of being removed.

With respect to **Sponging** and **Cold Air** I need not say much. The latter method consists in placing over the patient a large cradle, in which is suspended a tray containing ice. The ice has to be frequently renewed, and there must be some arrangement

by which the water from the melting ice can be carried away. The patient's body should be covered with a sheet. I may take this opportunity of saying that during the febrile stage the patient seldom requires more covering than a sheet and a light blanket, sometimes only the former.

All methods of reducing the temperature by the application of water, especially cold water, require watching. I have known an adult suffering from typhoid fever become seriously collapsed, because of being kept in a tepid pack for several hours after the temperature had fallen to normal; and I have also seen grave collapse result from sponging with water at 70° in a child, four years old, the subject of severe scarlet fever.

Antipyretic drugs I only seldom employ. **Quinine** is useful because it acts also as a cardiac tonic. Of the coal-tar derivatives I hold that **Antifebrin** is the safest, in doses of 2½ to 5 grains. Like baths, etc., antifebrin and antipyrin act as nerve sedatives.

As for those methods of treating the fever by attempting to destroy, or at least inhibit the growth of the bacteria in the bowels, I am not persuaded by my experience to place much faith in them. I have tried at one time or another, **Perchloride of Mercury, Salol, Resorcin, Menthol, Biniodide of Mercury, Carbolic Acid, β-naphthol, Salicylate of Soda,** and the exceedingly unpleasant, I had almost said abominably unpleasant, **Chlorine** and **Quinine** mixture so highly praised by Dr. Burney Yeo. I had much difficulty in getting the patients to take it. In most cases of typhoid fever the harmful bacteria have invaded the mesenteric glands, spleen, and blood, and are far beyond the reach of antiseptic remedies introduced into the intestine. I am not, however, wishful to assert that these agents are of no use whatsoever. In some cases where the stools have been offensive I have found both **Perchloride of Mercury** and **Resorcin** abate this offensiveness, but the latter drug occasionally produces a condition of urine similar to what is caused by carbolic acid.

Many cases of typhoid fever, far from having diarrhœa, are *constipated* throughout. In such cases a simple **Enema** should be administered every other day. Towards the end of the febrile period in some cases, and during the first two or three weeks of convalescence in nearly all, constipation is the rule. In not a few instances the action of the bowels is attended with much straining and pain, on account of the hardness of the stools,

This unpleasantness may be largely avoided by giving **Olive Oil,** emulsified by liquor potassæ, in the following mixture :—

℞ Ol. Olivæ	℥x	Sodæ Bicarb.	grs. v
Liq. Potass.	℥j	Aq. ad	℥xij
Saccharin	grs. iij		

One ounce three or four times a day.

(3,) The *complications* of which I intend to speak are two, which are very serious, and which are more or less peculiar to typhoid fever ; I mean hæmorrhage and perforation.

Hæmorrhage, though not very common, is still sufficiently so to be on the mind of every practitioner who is in attendance upon a case of typhoid fever. It is rarely, however, the immediate cause of death, but it means deep, if not extensive ulceration, and not a few of the cases in which it occurs subsequently perforate. The treatment is simple enough. All food by the mouth should be stopped, **Opium** or **Morphia** should be given in full doses, and **Ice** should be applied to the abdomen. The patient's extremities should be wrapped up in cotton-wool. I will here take the opportunity of saying a few words on the method of applying ice to the abdomen. *Do not use an ice-bag.* It has happened to me more than once to find an ice-bag full of warm water on a patient's abdomen, because the nurse has not observed that the ice had melted. This is not so likely to happen in private practice, as in a busy hospital ward. The best way is to spread a large piece of lint in a single layer on the abdomen. At the sides the lint should be wrapped lightly round a roll of absorbent cotton-wool, which will catch the water from the melting ice. Lay the ice broken up into small fragments upon the lint. It can then be seen at a glance when the ice requires renewal. If the amount of blood lost has been sufficient to cause blanching and collapse, I strongly advise the intravenous or the subcutaneous **Injection of Normal Saline Solution** to the amount of two or three pints. I have known this measure to be of great service in three or four cases.

Whether **Adrenalin** is beneficial in these cases I am not yet certain. Since the drug was brought under my notice I have had to treat only two serious cases of hæmorrhage. In these it appeared to do good, and I shall try it again. It should be given in the form of the chloride, 10 minims of a 1 in 1000 solution every two to four hours.

Turning now to the treatment of *perforation*, it has to be observed that the question of diagnosis has during the past few

years assumed a much more important place than it formerly did. At one time it was important to recognize the occurrence of perforation more from the point of view of prognosis than of treatment. But now that surgery has stepped in and given the patient a chance, which he was at one time without, it is of the utmost importance not only to diagnose a perforation, but to diagnose it as *early* as possible. There is a pretty general agreement that if perforation occurs, surgery does offer the best chance of recovery. It is perfectly true that a patient who has presented the symptoms of perforation will occasionally recover ; but such cases are rare, though I have seen three. The vast majority of them die. I think further, that there can be no question that the percentage recovery of the cases submitted to operation is *very* much larger than that of those left to themselves. What the exact recovery-rate is after operation is not certain, as there is reason to believe that all the fatal cases are not reported. Of 103 cases collected from various sources by Platt, of Manchester,[10] 21 recovered, or 20·3 per cent. Keen also collected 158 cases occurring up to 1899, with a percentage recovery of 23·4. Of 16 cases operated upon in the Johns Hopkins Hospital during the past few years, 6 recovered, or 37·5 per cent. According to Osler the recovery-rate of the cases not operated upon is not above 5 per cent ; I should say it was lower. At the Eastern Hospital we have so far operated only upon four cases, all of which proved fatal. In three of the four, however, perforation had occurred during a relapse, and two of these patients were children, both of which circumstances are unfavourable to a successful result. In the fourth case, a man of thirty-three, who at the time of perforation was in the most favourable condition of the four, the patient was unfortunate enough to be the possessor of an old peritoneal band, which stretched from the tip of the vermiform appendix to a loop of intestine in such a way as to render the finding of the perforated ulcer a matter of considerable difficulty and delay.

But in spite of our own want of success in this small number of cases, I am perfectly sure that as soon as a perforation is diagnosed **Laparotomy** should be performed, and it should be undertaken either immediately or as soon as the condition of the patient permits. Collapse not infrequently sets in immediately after the perforation has occurred, and the surgeon must wait until this has passed off. Unfortunately, in some cases, the patient never rallies, but dies collapsed a few hours after

the intestine has given way. I have, indeed, seen a patient die within ten or fifteen minutes of a perforation high up in the small bowel. Such cases are doomed from the commencement, and neither surgery nor medicine can help them.

There is one very important point in connection with the treatment of a case of suspected perforation, to which reference must be made. I allude to the administration of **Opium** or morphia. Osler, in the recent translation of Curschmann's work on typhoid fever (*Nothnagel's Encyclopædia of Medicine*), writes as follows : " The use of opium in these cases is justifiable only *after* the diagnosis has been made and operation decided upon." With this opinion I entirely agree. Opium so *masks the symptoms* that peritonitis may have advanced to a very considerable degree before its occurrence is ascertained. As it is, in severe cases of typhoid fever the semi-comatose condition of the patient may lead to perforation being overlooked until general peritonitis is well established. The patient's sensations are in some cases of great assistance to the physician, and it is a grave mistake to blunt them by the administration of opium.

Seeing the immense importance of dealing surgically with the perforation as soon as possible after it has occurred, it has been advised by very eminent authorities that an exploratory laparotomy should be performed when there is only a suspicion of perforation. We find Osler saying in the work just quoted : " That operation, when performed early, especially if done under local cocaine anæsthesia, as advocated by Cushing, is in itself not of great danger to the patient, even though at the time he is extremely weak from the effects of the disease, has been shown by numerous cases, and especially by several on whom exploratory laparotomy was done and no perforation found. These results have corroborated the statement of Mikulicz, made in 1884 : ' If suspicious of a perforation, one should not wait for an exact diagnosis and for peritonitis to reach a pronounced degree, but, on the contrary, one should immediately proceed to an exploratory operation, which, in any case, is free from danger.' "

I think that whether or not an exploratory operation is to be performed in a doubtful case of perforation, must depend somewhat upon whether or not the services of a surgeon accustomed to such operations can be obtained. Quickness in operating is very desirable ; and not only may no perforation of any sort be discovered, but while perforation usually occurs in the lower eighteen inches or so of the small intestine, it may take place high

up in the small gut, in the large gut, in the appendix, in Meckel's diverticulum, and in the gall-bladder, and also the rupture of a splenic infarct or of a suppurating mesenteric gland may give rise to similar symptoms ; with all these conditions the operator must be prepared to deal. As to the operation itself, as it is never quite certain exactly where the perforation is situated, I am of the opinion that the median incision is better than one in the right linea semi-lunaris. Unless the gut is too much diseased by the presence of a large, sloughing ulcer, the perforation should be invaginated by Lembert's sutures. The peritoneum should be cleansed of lymph with small sponges, but unless the inflammation is foul and extensive, irrigation is not necessary ; only in the latter condition is a drainage tube required. If the intestine immediately around the perforation is too unhealthy for invagination by Lembert's sutures, it should be brought to the surface of the abdomen, leaving an artificial anus to be dealt with later. When perforation is suspected all nourishment by the mouth should be discontinued. Pain may be allayed by hot fomentations to the abdomen, or by turpentine stupes. If collapse occurs, strychnine ($\frac{1}{60}$ to $\frac{1}{30}$ of a grain) should be injected subcutaneously, and the patient's extremities wrapped up in cotton wool. But, as I have said before, opium should not be given until either laparotomy has been performed, or the idea of performing it has been definitely abandoned.

I close by briefly referring to two conditions, which, though not so serious as hæmorrhage or perforation, are yet of importance and certainly necessitate treatment ; I allude to *tympanitis* and *cystitis*.

Tympanitis is not only exceedingly discomforting to the patient in mild or moderate attacks of typhoid fever, but in severe cases, especially when there is hypostatic engorgement of the lungs, it may embarrass the respiration, and on that account become dangerous. I have usually found great relief to follow the application of **Ice** to the abdomen ; the large intestine may be relieved of flatus by the passage of a tube into the rectum. **Turpentine** internally is also useful, especially when diarrhœa is present. In cases where there is no diarrhœa, Dr. F. J. Smith advises 2 drachms of **Sulphate of Soda** in warm water every two hours until the bowels act freely, with **Salol** or chlorine water. I have not, however, tried this treatment in any of my cases.

Cystitis is fortunately not very common, and I mention it only to draw attention to the fact that in **Urotropin** we have a specific remedy, especially when the inflammation of the bladder is due to the bacillus typhosus. I do not recommend that it should be administered in every case of typhoid fever, but it should be given in cases where the catheter has to be used. The dose is 10 grains three times a day. Unpleasant effects have been known to follow its use. Thus Langdon Brown has reported two cases of hæmaturia, and Nicolaier had a case in which 90 grains a day produced blood in the urine, and a burning sensation in the bladder. Cammidge gave it to a healthy man in doses of 10 grains three times a day, and found that on the third day it gave rise to formication, and on the sixth day a morbilliform rash. These results are, however, quite exceptional.

Chantmesse[10] claims to have prepared a **Serum** which is of value in the treatment of typhoid fever. According to him, of 371 patients treated by the usual methods from January 1st to October 10th, 1901, in the principal hospitals of Paris, the mortality was 29 per cent; while of 100 cases treated with the serum during the same period, 6 only died. The dose of serum is 10 to 12 c.c., followed by another 4 to 10 c.c. if at the end of a week or ten days the temperature has not become normal. [Great caution must, however, be exercised in drawing conclusions as to treatment from a comparison of case-mortalities in a small number of cases, especially in a disease so variable in its severity as typhoid fever. For instance, the case-mortality at the Eastern Hospital for 1900, amongst 201 admissions, was 16 per cent; while for the year 1901, amongst 150 admissions, it was 6 per cent; and there was no difference in the treatment of these two series of cases to account for this marked difference in mortality.—E. W. G.]

References.—[1]*Appendix to 9th Annual Report of M. O. H. of the London County Council*; [2]*Brit. Med. Jour.* Sept. 27, 1902; [3]*Appendix to Report of Med. Offi. of L. G. B.* 1900-1; [4]Quoted in *Brit. Med. Jour.* Aug. 2, 1902; [5]*Lancet*, Sept. 6, 1902; [6]*Brit. Med. Jour.* July 12, 1902; [7]*Lancet*, Nov. 2, 1901; [8]*Lancet*, March 15, 1902; [9]*Brit. Med. Jour.* Jan. 11, 1902; [10]*Lancet*, Feb. 25, 1899; [11]*La Presse Méd.* Nov. 20, 1901.

URÆMIA. (See "Nephritis.")

URINE. *Prof. Robert Saundby, M.D., M.Sc., LL.D., F.R.C.P.*

Dr. G. E. Pfahler, of Philadelphia,[1] has drawn attention to the occasional occurrence of *soaps* of lime and magnesia in the

urine. These occur as colourless, highly refractive crystals resembling tyrosin. He has met with them in three instances : The first was a case of acute mania ; the second was one of abscess of the liver ; and the third of cocaine poisoning. Von Jaksch has recorded only one example, which occurred in the urine of a woman with severe puerperal septicæmia.

P. Edel[2] has carefully observed three cases of *cyclical albuminuria,* and has drawn some practical conclusions which may be of value. He found that the albuminuria disappeared after the mid-day dinner, but that if the meal was omitted no diminution of the albuminuria took place. The effect of **Potass. Acet.** was to make the urine alkaline and free from albumin. When the urine was increased in amount there was no albumin, but when it was scanty albumin was always found. The pulse was very small in the morning, and the volume of the pulse was in inverse relation to the amount of albumin. He tried the effect of graduated exercise, by setting his patients to walk up hill, and succeeded in this way in producing a secretion of pale urine free from albumin. He obtained good results from generous diet combined with mountain climbing, and believes that these results were permanent.

Dr. Rolleston[3] has drawn attention to the occurrence of *hypostatic albuminuria* in cases of enlarged spleen, due to the pressure of the spleen upon the left renal vein. It is characteristic of this form of albuminuria to disappear when the patient lies upon the right side or assumes an erect position. He has observed this condition in three cases. He draws attention to the need for seeing that the bladder is empty before testing the effect of change of position.

Kalischer[4] has recorded a case of *albumosuria*, associated with myelomata of the ribs in a woman, aged sixty-seven. On heating the urine a copious precipitate appeared, which dissolved entirely on boiling and re-appeared on cooling. Nitric acid in the cold gave a precipitate which dissolved with heat, and also re-appeared on cooling. Death occurred a year and a half after the first onset of the disease, and at the *post-mortem* examination the tumours were found to be lymphoid myelomata. Dr. Bradshaw[5] has again returned to the same subject, and says that there are sixteen cases on record of myelopathic albumosuria. In this communication he says that hitherto it has not been known whether albumosuria appears at first in large quantities, or only in traces, but he has lately met with an example which occurred

in the person of a physician, where the condition was followed closely from its onset. In this case albumosuria was the earliest symptom of the disease, but was at first excreted only in small amounts; it seemed to follow an attack of acute pneumonia. Dr. L. P. Hamburger,[6] of Johns Hopkins University, has also lectured upon a case of albumosuria which occurred in a lady, aged forty-nine, who was the subject of several tumours growing from the bones. The urine gave a heavy, white precipitate on heating to 56° C., which re-dissolved on boiling and returned on cooling. Hugounenq[4] says that there are two forms of albumosuria: one in which the urine forms a precipitate on heating, which dissolves on boiling and re-appears again on cooling; and a second form in which no precipitate is formed on heating or after prolonged boiling, but albumose is thrown down by many other reagents; for example, by nitric acid, hydrochloric acid, alcohol, and ammonium sulphate. He thinks the first form is that especially connected with myelopathy, and the second (which is much more common) is frequently present in nephritis, in transitory disorders of nutrition, scarlet fever, pregnancy, and occasionally in cases of insanity; the latter form is better known by the incorrect name of peptonuria, and is of no pathological significance.

Professor Nicolaysen,[8] of Christiania, has published the details of a case of *hæmato-porphyrinuria* which occurred after **Chloroform.** The patient was a woman, aged twenty-nine, who had suffered from rheumatic fever, and whose urine had previously been normal. The pigment continued to show itself for a week after the operation for which the chloroform was administered. He attributes the occurrence to lowering of the action of the heart, which gave rise to lessened oxidation and the formation of hæmato-porphyrin. The patient made a good recovery. Another example of fatal hæmato-porphyrinuria from the abuse of **Sulphonal** has been published by Dr. Waldo,[9] of Bristol. The patient developed a condition resembling delirium tremens, in which general convulsions occurred, followed by coma and death. There was no albumin in the urine, but no urine was passed during the last forty-eight hours of life. No *post-mortem* examination was obtained.

A somewhat unusual case of *blue urine* has been published by Mr. John Good, of Stockport.[10] The urine is described as of a peacock-blue colour, clear, and staining the cork. Its sp. gr. was 1010; it was acid; free from sugar and albumin; and

turned a pretty rose colour on boiling with hydrochloric acid. Under the microscope were seen deep blue granules with squamous epithelium. Two ounces of sage-green urine were passed in Mr. Good's presence. The condition soon passed away, but a specimen of the urine was sent to London, and the colour was said to be due to methylene blue. Mr. Good, however, maintains that it is more probable that the blue was due to the formation of indigo, and in this he is supported by the editor of the *Lancet*. A somewhat similar case has been reported by Drs. McPhedran and Goldie, of Toronto.[11] A patient, aged twenty-four, who was complaining of headaches and inaptitude for work, passed urine which attracted attention on account of its "extremely bluish-green colour." It was slightly acid ; sp. gr. 1029 ; free from albumin and sugar, but deposited urates, which were tinted green and blue. The pigment was readily extracted from the urine by chloroform, and on evaporation a bright blue pigment remained which sublimed with a tinted vapour, and condensed on the surface beyond in the typical crystals of indigo blue. The pigment was insoluble in water, ethyl alcohol, and dilute acids, but readily soluble in chloroform, ether, carbolic acid, and hot methyl alcohol. With strong nitric acid it gave a yellowish solution, and with sulphuric acid a greenish solution, which quickly decolourized. After twice extracting the urine with ether, it was treated with hydrochloric acid and potassium chlorate for the presence of indoxyl sulphate, and again extracted with ether, but only the faintest trace of a bluish-green colour resulted. No more such pigmented urine was passed, but the yellowish-brown urine usually passed contained indican, and the authors refer to a case recorded by Phillips of a young married woman who during six years' observation had for three periods of two weeks each passed urine of a greenish blue to cobalt blue in colour, which was found to be due to indigo blue. In a case of Wheaton's it is mentioned that a hysterical woman passed blue urine for a few hours.

Dr. Archibald E. Garrod[12] points out that in three out of four *alkaptonuric* families the parents were first cousins. He says that this supports the view that alkaptonuria is a freak of metabolism, a chemical abnormality more or less analogous to structural malformations. It is noteworthy that the disease does not seem to be hereditary, at least there is no recorded instance of its occurrence in two generations of the same family. He has found that its onset appears to coincide with the digestion

of food, and that the newly-born infant may pass alkapton as soon as it has been fed. He is of opinion that alkapton is derived from tyrosin, which is formed as a product of pancreatic digestion, and the tyrosin is the parent substance of the homogentisic acid which imparts to alkapton urine its peculiar properties. He finds that the maximum excretion of homogentisic acid occurs five to seven hours after a meal, and he is therefore of opinion that the change from tyrosin to homogentisic acid takes place in the tissues after absorption, and not in the alimentary canal.

Rothschild[13] has reported a case in which the patient expelled in his urine a sausage-shaped fibrin-like body about ½ cm. in diameter and the length of the little finger. The appearance of this body had been preceded by intermittent attacks of hæmaturia, with bladder irritation, but the patient's general condition was good, and the urine was normal except that it at times contained albumin and blood. The substance was examined carefully, and its surface was found to be covered with epithelial cells, while the internal portion was homogeneous in character and contained no cells. It was thought to have originated in a tumour, but nothing could be felt, nor could anything be seen in the bladder. Six months later the patient had become very emaciated, and cystoscopy showed that the left ureter was discharging no urine. The left kidney was excised, and was found to be the seat of a tumour which involved two-thirds of the organ and protruded into the pelvis of the kidney, completely blocking up the opening of the ureter. Microscopical examination showed the tumour to be a giant-celled sarcoma. A body similar to that expelled six months previously was found in the ureter.

Several additional cases have been published[14] to illustrate the danger there is of causing hæmaturia by the administration of **Urotropin**. Mr. W. A. Milligan met with this result in a girl of eighteen who had been taking 5 grains of the drug five times a day for seven days. Mr. T. J. L. Forbes saw it follow the same dose in a man, aged sixty-two, after only 15 grains in all had been taken.

Tests for Sugar.—Carstairs Douglas[15] speaks on the whole favourably of the value of **Nitro-propiol** as a test for sugar in the urine, but he admits that there are other substances sometimes present in the urine which may reduce nitro-propiol to indigo, besides sugar. He gives about a dozen instances where a positive

result was obtained and yet sugar was absent, and he recommends that when absolute certainty is required in the case of quantities of sugar too small to ferment, the phenyl-hydrazin test should be relied upon.

J. Barker Smith[16] recommends a volumetric method of estimating sugar by means of the evolution of heat. The method requires a special apparatus which he has devised.

E. Riegler[17] has introduced a new method for the quantitative estimation of sugar in urine. The nitrogen is collected, and from the amount the quantity of sugar can be deduced. The method is carried out as follows: In a 200 c.cm. Erlenmeyer flask 15 c.cm. of copper sulphate solution, 15 c.cm. of alkaline potassium sodium tartrate solution, and 30 c.cm. of water are placed. The copper sulphate solution is 6·928 per cent in strength, while the tartrate solution is composed of 25 per cent of potassium sodium tartrate and 13 per cent of sodium hydrate. The flask is heated until the solution boils, when 10 c.cm. of urine diluted with water (strength 1 in 10) are added. The boiling is continued for two minutes. The blue colour should still remain after boiling. The solution is then completely transferred to a conical glass, and after half an hour the copper oxide will be found at the bottom of the same. The clear copper sulphate solution is then carefully poured off, and the copper is washed by means of 10 c.cm. of water in a test tube, which is provided with a rubber cork (fitting exactly). Two holes in the cork transmit the tube of the filter and a glass tube which is attached to a rubber tube. At the distal end of the rubber tube is a graduated glass tube, held perpendicularly by means of a stand. The lower end of this graduated tube is connected with another rubber flask, and fixed to a ring on the stand, so that the rounded flask can be lowered or brought up at will. Into this flask is poured water (acidified with HCl. to prevent the growth of mould, etc.) until the flask is half full, and the column of water is nearly up to the top of the graduated tube. To the copper oxide in the test is now added about $\frac{1}{2}$ grm. of crystalline hydrazin sulphate and 10 c.cms. of the potassium sodium tartrate solution, and the tube is plunged up to the cork into a vessel containing about 2 litres of water for about three to five minutes. The rounded flask having been so adjusted that the top of the column of water reaches the O mark in the graduated tube, the test tube is dried and heated carefully by means of a spirit lamp. In from a minute to a minute and a half a brown-black precipitate

of copper will be seen in the tube, and the nitrogen liberated will depress the column of water. The test tube is now brought back into the water vessel, and the rounded flask is lowered until the level of the water is equal to that in the graduated tube. After about half an hour the volume of nitrogen can be read off the graduated scale. The temperature of the room and the barometric pressure must be also read. Riegler refers to Allihin's tables for the calculation of sugar from the weight of nitrogen. He, however, adds a table of his own, giving the weight of 1 c.cm. of N. at various temperatures and barometric pressures, and also of the weight of grape sugar in milligrammes as compared with 1, 2, 3 up to 20 milligrammes of N. His experiments with definite quantities of sugar show in a few cases infinitesimal errors, and in other cases return exactly correct results.

Bile Acids, Test for.—Beddard and Pembrey[18] have in a recent paper confirmed the statements of Chauffard and Gouraud, which were quoted in last year's *Annual*, as to the value of the very simple method recommended by Professor Hay, of Aberdeen, for discovering the presence of bile acids or bile salts in the urine. They recommend that the urine should be placed in a test tube of a diameter of about one inch, and some sublimed or finely powdered sulphur thrown upon it. If the sulphur begins at once to fall in the urine, there is at least one part of bile salts per 10,000. If none falls at once, then, after waiting one minute, the test tube is given a very gentle shake ; if sulphur now begins to fall there is at least one part of bile salts per 40,000, and so on for further dilutions. Few precautions are necessary ; the urine must be free from air bubbles, it must be clear, and must not be warm, as at the temperature of the body the sulphur always falls ; therefore, in every case before the test is applied the urine should be cooled to about 17° C. The reaction of the urine and its specific gravity do not in any way affect the accuracy of the test. The present writer has used this test at every opportunity during the past year, and remains unconvinced of its *clinical* value, although it works admirably when a few drops of solution of ox bile are added to normal urine.

References.—[1]*New York Med. Jour.* Feb. 15, 1902 ; [2]*Münch. Med. Woch.* Nos. 46, 47, 1901 ; [3]*Lancet*, March 1, 1902 ; [4]*Deut. Med. Woch.* vol. xxvii, p. 54, 1901 ; [5]*Brit. Med. Jour.* July 13, 1901 ; [6]*Johns Hopkins Hosp. Bull.* Feb. 1901 ; [7]*Lyon Méd.* Jan. 25, 1901 ; [8]*Norsk. Mag. f. Laegevidensk*, lxii, p. 24, Jan. 1901 ; [9]*Brit. Med. Jour.* June 15, 1901 ; [10]*Lancet*, June 1,

1901 ; [11]*Brit. Med. Jour.* Oct. 12, 1901 ; [12]*Lancet*, Nov. 30, 1901 ; [13]*Med. Rec.* Jan. 4, 1902 ; [14]*Brit. Med. Jour.* June 26, 1901 ; [15]*Glasgow Med. Jour.* Jan. 1902 ; [16]*Brit. Med. Jour.* Nov. 23, 1901 ; [17]*Deut. Med. Woch.* May 16, 1900 ; [18]*Brit. Med. Jour.* 1902, vol. 1, p. 702.

UTERUS (Cancer of). *Arthur E. Giles, M.D., B.Sc., F.R.C.S.*

We would draw special attention to three excellent articles recently contributed by Haultain, Hubert Roberts, and Lewers[1] dealing with the etiology, pathology, diagnosis, treatment, and operative results of cancer of the uterus. Roberts' article contains a valuable bibliography of over a hundred references.

Etiology.—Roberts states (and we must agree with his statement) that nothing has been recently added to our scanty knowledge of this part of the subject. He recapitulates the different theories held at present.



Fig. 81.—Diagram of normal structure of cervix showing (A) area of transitional epithelium of external os.



Fig. 82.—Ulcerative epithelioma or cancroid, showing (c) ingrowths at ulcerative area.

Pathology.—Sarcoma of the uterus is a distinct form of malignant disease, which is rarer than carcinoma ; three cases have been reported lately by Croft.[2] Haultain (*op. cit.*) describes the three commonly accepted types of uterine cancer, which he illustrates diagrammatically, showing also, for comparison, the normal structure of the cervix (*Figs.* 81-84, which are reproduced by permission of *The Practitioner*). These types are : (1) The superficial ulcerative epithelioma, or cancroid (*Fig.* 82) ; (2) The papillary epithelioma (*Fig.* 83) ; (3) The interstitial, or adeno-carcinoma (*Fig.* 84). A sub-variety of the latter, which is sometimes given as a separate type, is the malignant adenoma, which presents the character of an apparent simple increase of normal glandular structure ; it is probably

a transition form, leading to true adeno-carcinoma, in which the glandular simplicity is lost owing to active proliferation of the gland-elements. He remarks that it may be assumed that the more the growth maintains the glandular appearance, the less the malignancy, and *vice versa*. This is in harmony with the view that a malignant adenoma is an early stage of adeno-carcinoma.

Diagnosis.—All writers agree in emphasizing the fact that pain, wasting, and offensive discharge are signs of *advanced* disease, and that in the early stages, increase in *menstrual hæmorrhage* and *intermenstrual hæmorrhage* are almost the only



Fig. 83.—Papillary epithelioma, showing ingrowths and cauliflower outgrowths.



Fig. 84. — Adeno-carcinoma (AC) Epithelial activity in deeper layer of glands.

symptoms; the importance of hæmorrhage as a symptom is, however, vastly increased after the menopause. The value of microscopical examination of suspected tissue cannot be over-rated, even though at times results may apparently be negative or even contradictory. Haultain says: "Although there are a few who still sneer at the microscope as a reliable means for the diagnosis of early malignant conditions, and pin their faith almost entirely to grosser clinical features, there can be little doubt but that by it, and by it alone in many cases, can a decisive opinion be arrived at in the earliest stages, while even in more advanced states it is of the utmost value as a corroborative."

Abel[3] calls attention to a peculiar arrangement of the elastic fibres in and around malignant foci which, he believes, con-

stitutes an important diagnostic point in doubtful cases. Under a low power of the microscope these fibres appear to surround the cancerous alveoli, but under higher powers they are seen crossing in all directions between the cells, where they present a peculiar broken appearance, as if they were actually destroyed by the disease, instead of being merely pushed aside. These broken fibres are never seen in any other neoplasm of the uterus, such as condyloma or tuberculosis, nor in hyperplasia of the connective tissue, hence they serve to distinguish simple atypical epithelial growths from true carcinoma.

Treatment.—So far there is no reason to hope that cancer of the uterus can be cured by any other plan than early operation. From time to time non-operative plans are recommended, but each one in turn, when put to a scientific test, proves fallacious and disappointing. The point of contention at present appears to be the stage at which a radical operation is no longer admissible. Lewers maintains that a growth that has extended beyond the uterus is inoperable by radical means ; others practice extensive and formidable dissections even when the disease has passed this limit. Such, for instance, is the procedure advised by Mackenrodt,[4] who does not hesitate to remove the vagina, broad ligaments, and glands. For the sake of those who may be disposed to attempt this heroic procedure, we give his modified technique, as follows : A large crescentic abdominal incision is made, extending from one iliac spine to the symphysis, and upward to the opposite spine ; the insertions of the recti muscles are divided, and the peritoneum (without incising it) is separated from the abdominal opening as high as the umbilicus. The abdominal muscles are then separated from their pelvic attachments, so that a large gaping wound is made. The peritoneum is now opened by a free transverse incision near its reflexion over to the anterior wall of the bladder, the uterus is drawn out, and the ovarian arteries ligated in the usual manner. The posterior edge of the peritoneum is now sutured behind the uterus from the right side of the pelvis across to the left, covering the sigmoid flexure. This allows the subsequent steps of the operation to be conducted extra-peritoneally. The pelvic peritoneum is directed upward, carrying with it the ureters as high as the iliac vessels, where the glands are found and removed with the surrounding fat and connective tissue. The ureter must be carefully protected. Peritoneal openings are sutured. The bladder and rectum are next separated, and the entire

vagina freed. Then the broad ligaments and para-vaginal tissues are separated ; the vagina is clamped, and divided with the cautery below the clamps. In this case neither instruments nor raw surfaces come in contact with cancerous tissue during the operation. The short flap of peritoneum attached to the bladder is sutured to the peritoneum posteriorly, so that the pelvis is completely shut off from the general cavity and can be drained per vaginam. The space between the bladder and abdominal wall is drained through the lower angle of the external wound. He insists on the fact that no single point in his technique must be omitted in order to prevent general infection. Extensive suppuration of the large cavity between the rectum and bladder is to be expected. Six successful operations are reported.

After-results of operation.—Briggs[5] gives the results of 84 cases operated upon up to November, 1900. He divides his results into three groups : (1) Adapted to the time test of four years and upwards, including all cases operated upon up to the end of 1896. Of the 33 patients, 30 only can be considered ; of these 6 are alive or apparently radically cured. (2) There were 38 operations during 1897-9 with two deaths, leaving 36 cases to consider ; of these 16 are living and known to be free from recurrence—*i.e.*, at one and one-third to three and five-sixths years' interval. The remainder are collected under (3), but are of too recent date to be of value.

Noble[6] gives a valuable summary of the results of various continental authorities, too long to quote here. He concludes, however, that it may be claimed that at least 10 per cent of cases operated upon for cancer of the cervix remain free from disease at the end of five years ; whilst the results of hysterectomy by either route for cancer of the body of the uterus are very favourable, and may fairly be said to reach 75 per cent immunity after the lapse of five years.

Palliative treatment of Inoperable Carcinoma.—Torggler[7] considers that pain, discharge, and hæmorrhage can all be relieved by the use of **Peroxide of Hydrogen,** in a 12 per cent (by weight) solution. The method he finds most efficacious is as follows : A speculum is carefully and properly introduced, the surface of the growth is cleaned up by swabs, and iodoform gauze soaked in the solution of H_2O_2 is packed into the vagina. As soon as the H_2O_2 touches the suppurating surface a formation of foam is seen, which is produced by the liberation of oxygen. To allow this action to be effective as long as possible, strips of

dry gauze are further packed into the vagina. The whole packing is allowed to remain for from two to four days. He cannot believe that H_2O_2 acts in stopping hæmorrhage, as some observers maintain. Further, he advises the application of **Formalin.** At first this is applied as a 4 per cent solution, but later he uses 40 per cent (that is, Schering's original solution). The caustic action of this drug causes contraction of the raw surface of the growth, and its antiseptic action diminution of the discharge.

Stapler[8] discusses the value of Jonnesco's plan of **Ligaturing** the uterine arteries, but rejects it on the ground that collateral circulation is too easily established for good results to be obtained. In his opinion the best procedure is the thorough scraping away of the growth with a sharp curette, and then, after taking plenty of time to stop hæmorrhage by hot injection or ice-water or pressure, to thoroughly cauterize the surface which remains with fuming nitric acid or chloride of zinc (30 per cent solution). The nitric acid is applied on small sticks wrapped in cotton-wool, only 2 or 3 drops of nitric acid being taken up at a time. In the case of large ulcerating cavities, packing with wool pledgets, each with 2 or 3 drops of nitric acid on, may be employed, the vagina being protected by gauze packing; such a packing must be removed in from one to two days. Another method recommended is to scrape away all growth, then stop bleeding, and powder iodoform thickly over the surface; next to rub the surface with a stick of silver nitrate, making a paste with the iodoform. A small amount of nitric acid is developed in the nascent state from this paste, and has a cauterizing action. Granulations of a healthy character soon appear under the crust which the paste eventually forms. The last method of treatment is that of steam vaporization by means of Pincus' apparatus. The steam is applied through a specially constructed speculum after scraping away the growth. One-half to one or two minutes is the time suitable for the continuance of the vaporization, and the temperature of the steam is about 105° to 110° C. By any of these means he claims that the discharges are lessened and disinfected, and in many instances recurrence does not take place for a long time; eighteen months in one case mentioned.

References.—[1]*Pract.* June, 1902; [2]*Lancet*, May 4, 1901; [3]*Arch. f. Gyn.* vol. lxiv, Part 2; [4]*Cent. f. Gyn.* No. 27, 1901; [5]*Liverpool Med. Chir. Jour.* Sept. 1901; *Pract.* April, 1902;

[6]*Phil. Med. Jour.* Nov. 9, 1901 ; *Pract.* April, 1902 ; [7]*Münch. Med. Woch.* July 23, 1901 ; *Brit. Med. Jour. Epit.* Nov. 9, 1901 ; [8]*Wien. Med. Woch.* No. 4, 1901 ; *Treatment*, May, 1901.

UTERUS (Displacements of). *Arthur E. Giles, M.D., F.R.C.S.*

Retroversion.—It is important to remember that retro-displacements of the uterus may exist without causing any symptoms. This fact comes out clearly in some investigations by Schroeder,[1] who examined 411 patients, with the view of determining how many with retro-displacements presented no symptoms referable to the condition. His conclusions are that the normal position of the uterus is anteflexion. In 25 per cent of his cases retro-displacement was present without giving rise to any painful symptoms, retroflexion being only half as frequent as retroversion.

Etiology.—The factor of muscular atony is perhaps insufficiently realized in discussing the causation of displacements ; a timely insistence on this point comes from Coe,[2] who sums up his observations in the following conclusions :—

(1,) Muscular atony is an important factor in the causation of uterine displacements, either alone or associated with the usual factors, overweight of the uterus and weakening of its ligaments and the pelvic floor.

(2,) Mere restoration of the organ to its normal position with regard to the axes of the pelvis is not sufficient to cause permanent relief of symptoms, unless additional support is afforded by firm pelvic and abdominal muscles.

(3,) The prognosis as to the cure of malpositions by operation is influenced by the general muscular tone of the individual.

(4,) Hence it should be the aim of the physician to endeavour to restore such a healthy condition of the muscles, either before or after operation, by appropriate treatment—baths, massage, electricity, gymnastic movements, out-of-doors exercise, tonics, and such regulation of the patient's dress and mode of life as seem best fitted to the individual case. In short, the work of the physician often begins where that of the surgeon ends, if the result is to be complete and permanent.

Treatment.—The using of the round ligaments for holding up the displaced uterus has some enthusiastic advocates, though many operators prefer some form of fixation or suspension of the body of the uterus. Thus Brown[3] adopts Alexander's operation, of which he gives the technique in some detail. Out of 230 cases he has known of only one in which the uterus resumed its backward position.

Tod Gwilliam[4] performs a "round ligament ventro suspension," as follows: An abdominal incision three or four inches in length is made in the median line at the usual site between the umbilicus and pubes. The adhesions are broken up and the fundus brought forward. With a finger and thumb or a pair of bullet forceps the broad ligament of one side is seized and brought to the opening. By lifting up the anterior surface of the broad ligament on the tip of a finger applied to its posterior surface, the round ligament is brought into view and is picked up, either between the thumb and finger, or with a bullet forceps. Selecting a point an inch and a half from the uterus, a thread is passed under the round ligament, and the ends of the thread are brought out of the opening and secured in the bite of a clamp forceps, which is laid upon the surface of the abdomen. The other ligament is sought for and secured in the same manner. At a point about one inch and a half above the pubes, the peritoneum, muscle, and fascia at one edge of the wound are caught up by a volsella and pinned together, being careful that the edges of these layers are in line. Traction is now made, and, with a small retractor, the skin and superficial fat are drawn in the opposite direction, uncovering the fascia. With a narrow-bladed knife, or, better, with the perforating forceps devised for the purpose, a stab wound is made from the surface of the fascia into the peritoneal cavity, the instrument entering one half inch from the edge of the abdominal incision, and passing obliquely downward and outward, emerging on the peritoneum one inch from the edge of the abdominal incision. If the perforating forceps is used, the jaws are separated, and, by an outward movement of the handle, brought into plain view at the large opening. The thread which loops the round ligament is now placed in the jaws, the clamp forceps removed, and the perforating forceps withdrawn, bringing with it the thread and the ligament. If a knife has been used to make the perforation, it is withdrawn and a slender forceps introduced, with which the thread is caught up and the ligament drawn into place. Now, while the ligament is held taut, with its loop end a quarter or third of an inch above the surface of the fascia, a catgut suture is passed through it, including the tissues on either side, and back again, where it is tied. This is cut close to the knot, the suspending thread cut on one side close to the ligament and withdrawn, and the volsella and retractor removed. The other side is dealt with in like manner, and the abdominal incision closed.

Prolapse of the Uterus.—Inglis Parsons[5] gives further results of his operation, which consists of the injection of **Sulphate of Quinine** into the broad ligaments. He has now operated on 40 cases, and the results have been quite satisfactory in 34.

For intractable prolapse, with hernia of the vaginal walls, Christopher Martin[6] advocates total extirpation of the uterus and vagina, and he describes the steps of the operation as performed in one case. A similar idea occurred to Edebohls,[7] whose account of the procedure appeared at about the same time as Martin's. He labels the operation, somewhat cumbrously, "panhystero-kolpectomy," and has carried it out in four cases.

Inversion of the Uterus.—Pinard[8] reports two cases treated by the introduction into the vagina of Champetier de Ribes' bag. One was successful; the other was unsuccessful, and vaginal hysterectomy was necessitated.

Haultain[9] reports a case successfully treated by abdominal hysterotomy. Gayet[10] also performed hysterotomy successfully in one case, but the operation was carried out through the vagina by an anterior colpotomy.

REFERENCES.—[1]*Zeits. f. Geb. u. Gyn.* vol. xliii, Part 3; [2]*New York Med. Jour.* Nov. 9, 1901; [3]*Med. Rec.* Feb. 22, 1902; [4]*New York Med. Jour.* Jan. 4, 1902; [5]*Brit. Med. Jour.* Oct. 5, 1901; [6]*Ibid.*; [7]*Med. Rec.* Oct. 12, 1901; [8]*Ann. de Gyn. et d'Obst.* Oct. 1901; [9]*Brit. Med. Jour.* Oct. 5, 1901; [10]*Lyon Méd.* Nov. 17, 1901.

VARICOSE VEINS. *Priestley Leech, M.D., F.R.C.S.*

In his Lettsomian Lectures[1] Pearce Gould rejects the theory of obstruction as the cause of varicose veins for the following reasons: Varicose veins often make their appearance before the growth of the individual is complete; they are one of the diseases of immature development. Out of 50 cases, 41 observed their varices before the age of twenty-five years, and only 9 after that age. Puberty and adolescence are not the period of life in which venous obstruction predominates, nor are they the time of life at which strain is liable to tell upon the integrity of the vessel walls. The subjects of varicose veins are often very healthy-looking individuals, and there is a conspicuous absence in cases of varix of the usual symptoms and consequences of venous obstruction. In the great majority of cases of varix these symptoms are all absent. The results of treatment are against this theory, for ligature of the main superficial vein into

which the varicose veins empty their contents would increase the obstruction, but as a matter of fact it often cures the varix. In pregnancy, again, it is doubtful if pressure of the pregnant uterus has any influence in causing varicose veins, for in many cases they have been noticed before marriage; they are more troublesome in the early months of pregnancy, when the uterus is not large enough to cause pressure on the iliac veins; and in ovarian and uterine tumours, which are much larger than a pregnant uterus, no varicose veins are found. Again, the sex incidence of varix is against the theory that pregnancy is a cause, for Pearce Gould found that out of 245 cases 153 were men and 92 women.

He thinks that varix should be looked upon as a venous angioma. He has seen after Trendelenburg's operation development of new veins connecting the divided ends of the saphena vein; and in some cases we see a combination of undoubted venous nævus and varix, and venous nævus may and does grow during adult life. In addition there is the capricious or irregular distribution of varices, *e.g.*, in one case the whole saphena vein may be enlarged, in another only a small portion may be affected, and there is also the fact that varicose veins seem to be distinctly hereditary. The striking innocuousness of varicose veins is another fact in support of the same theory. An extreme degree of varix persisting for many years is by no means incompatible with unimpaired function and structure of the parts draining into the enlarged veins, and the varicose veins themselves will often persist throughout life without undergoing any secondary or further changes. The minute structure of a varicose vein shows that all the normal constituents of a vein are found in a varix, and are usually increased in amount. But associated with this growth of venous tissue there is very usually a failure in the valve apparatus, which allows of regurgitation of blood from the main deep veins into the superficial veins. This is shown by asking the patient to lie down after having examined him in the upright position; the limb is then raised to the vertical and the varices are completely emptied by gentle centripetal pressure. The thumb or forefinger is now placed in the groin so as to compress the upper end of the internal saphena vein, and the patient is told to rise. It will be found almost without exception that the varices will remain lax and empty so long as the compression is maintained upon the main

vein above, but that they fill out at once from above when the compression is removed.

The gravity of varicose veins is, he thinks, much exaggerated. The effect of varices upon the nutrition of the part, whether the leg or the testicle, is very small, if indeed it be at all perceptible. The cause of the ulcer occurring in the lower third of the leg must be sought for elsewhere than in varicose veins. The most frequent ill-effect of varices is a sense of fulness or weight in the part, which may amount to severe aching in the distended veins. Where varicose veins do not trouble a patient, he need rarely trouble about them; but a young woman with large varices is wise to have them treated before marriage and pregnancy, and young people of either sex should have them treated before going to live in a hot climate.

He has had several more cases of Trendelenburg's operation. This operation is a simple one, seldom requiring more than five minutes for its performance. The saphena vein is found a finger's breadth on the inner side of the common femoral artery, and is best exposed by a $1\frac{1}{2}$ to 2 inch incision parallel to the groin, with its centre over the vein. The vein is found lying between the two layers of the superficial fascia, and after it is cleared a double ligature is placed on it, one thread being tied as high as possible, and the other 2 inches lower down, and the intervening portion of the vein is cut out. The wound is closed by a few points of suture, followed by a collodion dressing. Gas and oxygen are often the only anæsthetic needed. The patient is able to get up on the eighth day and leave the hospital two days later. He gives a further list of 50 cases (he published a previous list of 50 in the *Lancet*, April 8th, 1899). Out of these latter 50, two young patients are no better for the operation; all the others have experienced benefit from it. Pain is markedly lessened by the operation. The influence of the operation upon the veins varies; in no case so far has the varix increased, nor has there been any further development of it; in some the varices disappear; in others they decrease in size; and in a small minority of cases they seem little, if at all, affected by the operation. The tendency to thrombosis seems to be greatly lessened, if not entirely removed. The good effects of the operation are most pronounced where regurgitation into superficial veins is best marked. It is suitable for those widely distributed, even general, varicosities of the lower limbs for which excision is inapplicable. The fact that this operation

has such a marked effect upon the course of varix is a strong proof of the important part that valvular defect plays in the history of cases of varicose veins.

REFERENCE.—[1]*Lancet*, March 1, 1902.

WORMS. *R. Hutchison, M.D.*

The opinion has recently been gaining ground that many of the symptoms produced by intestinal worms are due to *poisoning* of the host by a toxic substance which they secrete. The latest researches on this subject relate to the poison of tæniæ, and are contained in a paper by Dr. Dante Calamida.[1] He obtained some tæniæ (*T. cocomerina* and *T. cœnurus*) from dogs that had been killed expressly for this purpose, washed them carefully in distilled water and in salt solution, powdered them with broken glass diluted with physiological salt solution, filtered through a Berkefeld filter, and concentrated the extract on the water-bath, at 30° C. He tested this extract by various chemical reactions, which he enumerates in detail. All the precipitates obtained with the various reagents were amorphous. Injections into rabbits of solutions of the precipitate, made with dialysed magnesium sulphate and dissolved in a dilute saline solution, produced grave symptoms of poisoning, such as an abrupt fall of temperature, paresis, especially of the posterior extremities, clonic and tonic convulsions, etc. These symptoms were less pronounced after injections of the precipitate dissolved in ammonium sulphate solutions. The chemical nature of the precipitate is now under investigation. The extract was also found to have strong hæmolytic powers, which were more rapid in the blood of the guinea-pig than in that of the rabbit. Its chemiotactic power was especially marked toward eosinophile cells. Injections of the extract into the liver of rabbits and guinea-pigs produced after twenty-four hours a profound degeneration of the hepatic cells, and after forty-eight hours the liver assumed a "nutmeg" appearance. On microscopic examination the fatty and granular degeneration was found to be diffused throughout the organ. If the blood is examined from time to time after the injection, an intense leucocytosis with predominance of eosinophile cells will be observed after six or eight hours, and if death does not supervene before, many nucleated red cells will be found in the blood after twenty-four hours. The author concludes that there is a specific poison to which the pathologic action of tapeworm is due, and that this poison is directly produced by these parasites themselves.

Dr. E. B. Girotti's experience[2] in a district where *round worms* are common leads him to believe that these also produce not only a mechanical and reflex effect, but also act upon the host in virtue of a poison. He admits, however, that it is difficult to separate the symptoms of toxæmia from those due to nerve-irritation. There are cases of *ascarides* in which the patient is so profoundly poisoned that his condition resembles the typhoid state. The author reports such a case, in which sixty worms were passed in response to calomel, but the toxæmia persisted, and the child (three years) died on the twentieth day.

REFERENCES.—[1]*Rif. Med.* Aug. 5, 1901 ; [2]*Gaz. deg. Osped.* Aug. 4, 1901.

XANTHOMA. *Norman Walker, M.D.*

Leviseur[1] reports good results from **Electrolysis.** The needle should be introduced horizontally, and a current of from 2 to 3 m.a. should be continued for about thirty seconds.

REFERENCE.—[1]*New York Med. Rec.* Dec. 7, 1901.

X-RAYS IN SKIN DISEASES. *Norman Walker, M.D.*

One hears much less nowadays of evil effects from the X-rays. Beck[1] in an interesting paper distinguishes degrees, as in ordinary burns. The first, associated with hyperæmia and extreme itching ; the second, associated with the formation of blisters (the bullous form) ; while the third and gravest degree is a sort of dry gangrene, the necrotic form, which results in an ulcer which takes months to heal. The most characteristic difference between the ordinary burn and the X-ray burn is the period of incubation ; it is often two weeks before the changes are manifest. He refers to the condition of the hand which develops in workers, and gives his personal experience to the effect that after years of working his hands at last gave way, and he has been compelled to abandon the common, unwise practice of using his own hand on the screen as a test. He reports a very interesting case where the thorax had to be repeatedly examined. At first soft tubes were used, but as sufficient penetration was not obtained, hard ones were substituted, and to them he attributes the bullous dermatitis which appeared ten days later. This is an interesting observation, for many assert that soft tubes produce the irritation most readily. His experience is that blonde patients are most liable to attacks, and that certain regions are more susceptible than others.

With regard to the therapeutic uses he has some most sensible

remarks to make. "Trying is better than studying," and there should be "no cast-iron rules as to exposures." He places his tube four inches from the patient. He prefers soft tubes. He firmly believes that the rays have bactericidal powers. Should, unfortunately, the severe form of burn appear, he recommends that it should be treated surgically and excised, a method which he has long recommended for ordinary burns of similar severity.

Scholtz,[2] in an extensive and valuable paper, discusses the action of the rays. His experiments were conducted on rabbits and pigs, and his conclusions are as follows: The beneficial rays are the X-rays, and the greater the number of these the greater the benefit; therefore soft tubes are indicated when action on the skin is desired. They only act on the deeper structures after having inflamed the skin, but he reports, and this we have ourselves noted, that they exert their action on the skin on the opposite side of the body to that exposed to the rays. He experimented on cultures, and found that the germicidal powers of the rays were *nil*. Repeated examinations were made on patches of excised skin, especially in lupus. He found the cells greatly swollen, large numbers of leucocytes present, and a remarkable development of enormous giant cells containing over a hundred nuclei.

Codman[3] concludes that the frequency of injury has been much exaggerated. One-third of the cases occur in X-ray working. Not one case in a thousand examined has been injured in the past five years, and in the past year not one in ten thousand. The important factors in the production of burns are the intensity of the current, the quality of the tube, the distance and time of exposure, and the idiosyncrasy of the patient. He has of course noted the long period of incubation, the longest being five months. He suggests that there should be a standard distance and period for therapeutic exposure; but does not this ignore the other factors? After all, the quality of the tube and one's knowledge of its effects are the most useful criterion.

The **Leslie Miller Lamp,** producing abundant ultra-violet rays, was introduced with much flourish of trumpets. Good results are reported by electric experts to follow its use. At the Manchester meeting of the British Medical Association there was considerable scepticism expressed by the practical dermatologists as to the good effects. It is to be noted that the application of this lamp is associated with a compression during some minutes by ice, and that **Freezing** by chloride of ethyl, and liquid

air, without any ultra-violet light, have been noted as being in themselves curative in certain cases of lupus.

The X-rays are undoubtedly the more popular method, and case after case has been recorded, and every hospital is now treating large numbers of patients by their means. It is quite impossible to mention even a proportion of the cases which have been published in the last twelve months. One thing is certain, that they are firmly established as a method of treatment, and their more general utility will always make them popular with those who are only installing one apparatus. Their effects were discussed at Manchester, with the usual differences of opinion as to the use of hard or soft tubes. Our own experience is that a certain amount of reaction is beneficial, and we aim at increasing this by the application of **Carbolic Acid,** a method which we found had also been used with benefit by Dr. McLeod, of Charing Cross Hospital.

No written directions can possibly confer the power of rightly applying the rays. Practical experience is necessary, and every operator must begin at the beginning, studying the effects on each case, with his own apparatus. An exposure of five minutes with one tube may do good, while the substitution of another tube on the same coil may produce violent dermatitis. In small circumscribed patches a prolonged exposure with the deliberate intention of causing sloughing is quite justified. It is true the ulcer may take a long time to heal, but while it is healing the patient can continue his work and does not need to go daily to hospital for treatment. On the other hand, when the area is large, it is unwise to risk the production of a large ulcer ; in such cases the exposures should be short, and when the resistance of the patient has been gauged, frequently repeated.

The other method of treatment—Finsen's—and the further modifications of it with which we are threatened, undoubtedly can be depended upon to cure the disease, but the time is wearisomely long. It was most instructive at Manchester to note that the bent of the practical dermatologists was all towards the X-rays, while the theorists inclined to the Finsen apparatus. There is no gainsaying the fact that the scars left by the Finsen method are as nearly perfect as it is possible for a scar to be. But till one has personal experience it is impossible to grasp the very prolonged period which is required for treatment. The various modifications of the lamp, which all have the merit of being very much less expensive than the original, do not seem

so certainly effective. This may possibly be due to the less constant attention given to compression. In the original method it is the duty of the nurse to exercise forcible compression on the part during the whole period of exposure. In newer apparatus the patient is often made responsible for the compression, and it is certainly not so efficiently done. If anyone doubts this let him try the experiment of sitting for a quarter of an hour pressing firmly on the lens of one of the new lamps.

The use of the rays is not confined to lupus; elsewhere we deal with their effects in *rodent ulcer*, and they are perhaps too extensively used in *hypertrichosis*. Walsh[4] suggests a combination of X-rays with electrolysis, first loosening the hairs by the X-rays and then passing the needle into the follicles.

Schiff, Startin, Pusey, and others report completely successful and permanent results in hypertrichosis from the X-rays; but for some reason the method does not seem to have been largely taken up by dermatologists of repute, and it is in this country, we believe, mainly practised by that latest addition to the army of quacks, "the electric specialist," who is ever ready to apply the rays in any possible condition. Kienbock says they should hardly ever be used for this purpose, and he is one who is in a position to speak with authority.

In *favus* the rays are now quite extensively used, and numerous cures of that otherwise almost incurable disease have been reported; indeed it may almost be said to have become now the routine treatment.

In last year's *Annual* we referred to the treatment of *nævus* by Jutassy. We have not come across any further references, but a case of lupus under our care happened to have a well-marked "port-wine stain." This markedly paled under treatment, regaining a large part of its redness when, for some weeks, the patient was not under treatment. We have also confirmed an observation of another writer, whose name we cannot recollect, that *warts* disappear under the application of the rays.

REFERENCES.—[1]*Med. Rec.* Jan. 18, 1902; [2]*Arch. f. Derm.* Jan. Feb. March, 1902; [3]*Med. Rec.* March 22, 1902; [4]*Lancet*, Nov. 2, 1902.

YELLOW FEVER. *James Cantlie, M.B., F.R.C.S.*

Our knowledge of yellow fever has during the past two years been advanced in a most remarkable degree by the investigations conducted by the United States Army Commission in Cuba. The results of these investigations prove[1]: (1) That no specific

bacterium or protozoan of any kind is present in the blood, tissues, or excreta of yellow fever patients. (2) That the blood of yellow fever patients injected into healthy (non-immune) persons causes an attack of yellow fever; the specific agent being therefore in the blood. (3) Blood taken from a yellow fever patient and defibrinated, or diluted and passed through a Berkefeld filter, and the remaining serum injected into the veins of a healthy person, causes yellow fever. The specific agent is therefore in the blood serum, and is either a germ which is ultra-microscopic, and which cannot be excluded by a Berkefeld filter, or it is non-bacterial and in all probability a toxin. (4) Yellow fever is not spread by fomites. This was definitely tested for several weeks by allowing healthy (non-immune) persons to sleep on mattresses and pillows and in pyjamas and under sheets and blankets soaked in yellow fever excreta and vomit. None of the persons so exposed contracted yellow fever. (5) The mosquito—*Stegomyia fasciata*—by its bite conveys yellow fever from the sick to the healthy. This was ascertained by allowing mosquitoes which had fed on yellow fever patients to bite healthy persons, when yellow fever appeared amongst them after certain definite periods. In the room in which the experiment was made other persons protected by a mosquito-proof netting slept, and in no instance did the disease spread to these. (6) The infected mosquitoes did not inoculate healthy persons with yellow fever until twelve days after they had become infected. This fact would point to a germ rather than a toxin as being the specific agent in yellow fever. Yellow fever would appear therefore to be another of the virulent diseases spread by insects, and again the mosquito is the medium.

A bacillus of yellow fever.—Durham and Myers,[2] in their report on yellow fever, state that they found a bacillus in the organs of all fatal cases of yellow fever. The bacillus is about 4μ in length and can be stained by carbolic fuchsine solution (Ziehl) diluted with 5 per cent phenol solution; immersion for several hours is followed by differentiation in weak acetic acid. Two hours' staining period may fail to reveal bacilli which appear after twelve to eighteen hours. The bacilli being small and comparatively few, they are difficult to find, and authors adopted a method of sedimentation to facilitate matters. Pure growths of the bacilli are not obtainable in ordinary aerobic and anaerobic culture tubes. Some pure cultures were obtained by placing whole mesenteric glands (cut by means of a thermo-cautery)

into broth under a strict hydrogen atmosphere. The authors concluded that yellow fever is not due to parasites of the nature of protozoa, nor did they believe that the disease was carried by mosquitoes.

The Blood and diagnosis of Yellow Fever.—Gray[3] states that the increase of mononucleated cells in malarial blood serves as an aid in the diagnosis of that condition, and that the marked decrease of the cells in yellow fever is well worthy of placing on record. The lowest percentage of large mononucleated leucocytes he observed in malarial cases examined amounted to 19; whilst in three yellow fever cases they only reached 11, 7·66, and 8·33; and in a case related by Low[4] 5·3 per cent only.

Infection of ships.—Carter[5] accepts without reservation the theory of the conveyance of yellow fever by infected mosquitoes · and by an infected vessel he understands a vessel which is harbouring mosquitoes infected with the poison of yellow fever. He states that there are obviously two methods by which ships can become infected: (*a*) A case of yellow fever contracted elsewhere may develop on board a vessel already harbouring stegomyia mosquitoes, which become contaminated from it; (*b*) The stegomyia mosquitoes may come on board already contaminated. It is obvious that the period of the appearance of cases of yellow fever during a voyage will depend on the method of infection. It has been ascertained that twelve days must elapse between the date on which the mosquito fed upon the yellow fever patient and the period when its bite can infect other persons; and as, after being bitten, six or six and a half days elapse before the person bitten falls ill, the exact place and date of infection in ships calling at ports every few days becomes well nigh impossible to fix positively.

Prophylaxis.—The prophylaxis of yellow fever by preventing the spread of the disease by mosquitoes, has been put to practical test in Cuba. The disease, which has been endemic in Havana for some two hundred years, has been, by putting the mosquito-yellow-fever theory into force, stamped out, and Havana for eighteen months has had no cases of yellow fever. The method employed by Major Gorgas[6] has been to seek out the patient suffering from yellow fever and protect him from mosquitoes. What share the extirpation of mosquitoes (by destroying their breeding grounds) played, if any, is not related, but all mosquitoes found in infected houses were killed. Accepting the mosquito-yellow-fever theory it follows that a case of yellow fever having

been imported into a seaport town, the prevention of spread consists in : (*a*) Excluding mosquitoes from access to the yellow fever patient ; and (*b*) Destroying the mosquitoes already infected. It is now known that wearing apparel or baggage cannot convey the disease, and the dread that infected mosquitoes may be imported in boxes or trunks seems groundless, as, according to Reed and Carroll,[7] mosquitoes when deprived of water die within a few days.

Protection against Mosquitoes.—Reed[8] recommends the use of camphor, menthol, or pennyroyal to rub the exposed surfaces of the body when visiting yellow fever cases.

McIntosh,[9] from practical experience employs, as a means of warding off mosquitoes the oil of **Citronella** (oil of verbena, Indian melissa oil). He combines the oil with alcohol, using a drachm of the former to an ounce of the latter, and directs that the mixture be applied freely to face, neck, hands, and ankles. A popular mosquito-protective preparation known under various names ("Skat Skeeter," etc.) consists of the above, coloured slightly green.

Guiteras[10] reports that *immunization* on a large scale cannot be attained by the present methods or without considerable risk to the individual, although the risk is less than that incurred where the disease is contracted in the ordinary way.

Treatment.—Carroll[11] believes that in persons suffering from yellow fever, whose organs are sound, the mortality can be reduced to zero by adopting the following plan of treatment. With the object of removing the toxin from the system, he advises obtaining moderately free action of the skin and of the bowels, by administering **Hot Mustard Foot-baths, Sinapisms** to the stomach, cold to the head, and **Sodium Sulphate** enemata. For the first three days of illness **Milk** with **Vichy** or **Lime Water,** should be given ; iced champagne when required. **Urea** given by the mouth or hypodermically serves as a valuable diuretic.

References.—[1]*Jour. Trop. Med.* Sept. 1, 1902 ; [2]*Johns Hopkins Hosp. Bull.* Feb. 1901 ; [3]*Brit. Med. Jour.* Jan. 25, 1902 ; [4]*Ibid,* Feb. 8, 1902 ; [5]*Med. Rec.* March 22, 1902 ; [6]*Lancet,* April 12, 1902 ; [7]*Med. Rec.* Oct. 21, 1901 ; [8]*Ibid,* Oct. 26, 1901 ; [9]*Ibid,* Nov. 16, 1901 ; [10]*New York Med. Jour.* Nov. 30, 1901 ; [11]*Jour. Amer. Med. Assoc.* July 19, 1902.

Part III.—MISCELLANEOUS.

Sanitary Science, 1902.

By JOSEPH PRIESTLEY, B.A., M.D., D.P.H.,
Medical Officer of Health, Borough of Lambeth, London.

SECURITY OF TENURE FOR SANITARY OFFICERS.

The question of security of tenure of office of Medical Officers of Health and Sanitary Inspectors has been brought prominently forward during the year, by a Bill introduced by Sir Francis Powell, supported by such well-known men as Sir Walter Foster, Sir Michael Foster, Mr. Cripps, Dr. Farquharson, and others, but which owing to the pressure of other legislation only reached the first reading. The need of some legislation appears obvious. Medical Officers of Health and Sanitary Inspectors are appointed to carry out duties laid down by the Local Government Board, by whom their appointments must be confirmed. A local sanitary authority appoints an officer; the appointment is confirmed by a central Government authority, which lays down the specific duties of such officer; and yet that officer can be dismissed by the local authority., *e.g.*, for carrying out too faithfully the duties imposed upon him (or her) by the central authority. The nature of the duties of a sanitary officer is such as to lead to money having to be spent—sometimes a very large amount; and where money has to be spent, enemies arise. Vested interests are attacked, or threatened, daily by a sanitary officer in the course of his duty, and if such duty is to be carried out satisfactorily and without fear or favour, some security of tenure of office is an absolute necessity. The legislature has already admitted the principle of security of tenure, as shown by the fact that in Scotland and London Medical Officers of Health cannot be dismissed by a local authority without the consent of the Local Government Board. The Society of Medical Officers of Health has been working at the subject for many years past, and it is to be hoped in the interests of the public health that before long matters may be placed upon a more satisfactory footing.

SMALL-POX AND VACCINATION.

The last two quarters of 1901 and the first three quarters of 1902 witnessed a severe outbreak of small-pox within the County of London—9441 cases and 1540 deaths being notified and registered

respectively during that period. The infection was probably brought over from Paris in the first place, and secured a hold in the Boroughs of St. Pancras and Marylebone, where it multiplied rapidly, and whence it spread over the rest of the Metropolitan area (no single district escaping). The Eastern and Central districts suffered most (case-rates per 10,000 of 45·3 and 42·6), and the Western and Southern least (case-rates per 10,000 of 10·5 and 15·6). Of the twenty-nine individual sanitary districts which now make up the County of London, Hampstead in the North suffered least, and Holborn in the Centre most.

Compared with previous small-pox epidemics in London and elsewhere, the 1901-2 outbreak within the Metropolitan area must be regarded as comparatively slight—the chief reasons being the strict precautions that were everywhere taken, and the great publicity that was given to the disease in the press. The disease has been reported upon locally by the different Medical Officers of Health concerned, and the one great lesson that is acknowledged, or demonstrated, in all the reports is that *exact* notification, followed by *immediate* isolation in hospitals away from London, and *efficient* disinfection, are all-important measures in preventing the spread of small-pox (as they are in the case of any other infectious disease). Another point that has been emphasized is the necessity for following up carefully all "contacts" or "suspects" during the usual well-defined incubation period of the disease—what is generally called "quarantining," but what might better be described as "medically inspecting." On account of the publicity given by the press (as already mentioned), people became frightened, and in this way the different sanitary authorities were greatly assisted. Indeed, with similar help from the press, there can be little doubt but that other infectious diseases could be grappled with with equal success, *cæteris paribus*.

But what about vaccination and re-vaccination? All reports to hand show what is common knowledge to all unprejudiced minds, *viz.*, that efficient *recent* vaccination and re-vaccination are absolute preventives against small-pox attacks. In proportion as a person is well, badly, or indifferently protected by vaccination, in the same proportion he (or she) runs no, great, or some risks of contracting small-pox by direct or indirect contact. Throughout a well-vaccinated and re-vaccinated community, small-pox cannot spread, as shown markedly by the figures recently published by the Metropolitan Asylums Board with reference to the large protected staffs of nurses and other officers employed in dealing with Metropolitan small-pox outbreaks. Of 2198 persons employed at the small-pox hospitals between 1884 and 1900 inclusive, in which period 17,900 small-pox cases were received into the hospitals, only 17 persons contracted small-pox, of whom 13 were not re-vaccinated until after they had joined the ship, and 4 were workmen

who escaped medical observation. During the year 1901-2 a large number of new staff joined the small-pox hospitals, but not one single case of small-pox has occurred amongst this large number of officers, all of whom were efficiently protected by re-vaccination before going on duty in the small-pox-infected hospitals. From the year 1881 to the end of 1901 there have been employed in the ambulance service of the Board 1282 persons. Four of these persons contracted small-pox, of whom one escaped vaccination when appointed, and he died; one was unsuccessfully re-vaccinated on joining the service, and the operation was not repeated, and she died; and the two others had been re-vaccinated and recovered. Further conclusive evidence is afforded by the fact that all the nurses and servants of the hospitals, to the number at one time of upwards of 300, who are hourly brought into the most intimate contact with the disease, who constantly breathe its atmosphere, and than whom none can be more exposed to its contagion, have, with but few exceptions, enjoyed complete immunity from its attacks. These exceptions were cases of nurses or servants whose re-vaccination in the pressure of the epidemic was overlooked, and who speedily took the disease; and one case was that of a nurse, who, having had small-pox previously, was not re-vaccinated, and took the disease a second time. Not one of the staff of the small-pox hospital ships has ever died of small-pox, and not one has even suffered from the disease for the last eight years. Facts are stubborn things, but so are people in general; and despite the above lessons, London was not prepared as regards protection (partial or complete) from vaccination for the small-pox outbreak. Under panic, much vaccination and re-vaccination took place, not only throughout London, but also throughout the British Isles (thanks again to the publicity given to the metropolitan small-pox outbreak by the press)! Taking the figures as at present published, and bearing in mind the largeness of the population of the metropolis, it must be admitted that vaccination and re-vaccination have not been allowed to play the important part as preventive measures that one could have wished; and the success which has attended the other preventive measures taken proves that vaccination and re-vaccination must not, at least at the beginning of the twentieth century, be alone trusted to. The public is indifferent, and is prepared to pay heavily for dealing with an outbreak of small-pox, rather than suffer the slight inconvenience of being absolutely protected by the inoculation into their systems of a reliable and trustworthy "anti." Such is the position in which practical sanitarians find themselves to-day, and all, if they are honest, must admit it openly and freely, and be at all times prepared to act accordingly.

If Parliament reflects truly the popular feeling, compulsory re-vaccination at school age, except with the conscientious

objector's clause re-enacted, will be unlikely to find a place on the British Statute Book, though the whole question of vaccination is likely to be much discussed during the coming year, when the new Vaccination Act (1898) lapses (it being but a temporary measure for five years). Many suggestions are already being put forward by various bodies, *e.g.* :—

(1,) Transference of the administration of the Vaccination Acts from the Guardians to the Sanitary Authorities, or to some Central Authority ;

(2,) The abolition of the office of public vaccinator, and the making of every medical practitioner a sort of public vaccinator for his (or her) own particular patients, under proper supervision and inspection ;

(3,) The compulsory re-vaccination of all children at school age, with (or without) the re-enactment of the Conscientious Objector's Clause ;

(4,) The guaranteeing, or standardisation, of calf lymph by the Local Government Board, and its supply, on demand, to every medical practitioner ;

(5,) The standardising, or defining, by the Local Government Board of so-called "efficient vaccination ;"

(6,) The need for legislative powers to enable Sanitary Authorities to expend public funds in promoting vaccination whenever their districts are visited by, or threatened with, small-pox, *e.g.*, by offering a monetary inducement to vaccination (a small bonus when the operation is performed, followed, if necessary, by a small compensatory allowance in the event of disablement from such operation) ;

(7,) The compulsory vaccination (and re-vaccination) of all persons in a dwelling-house wherein small-pox has broken out;

(8,) The making it an offence under the Public Health Acts to refuse, or withhold, information, or to give false information, with respect to persons living in a house in which small-pox has broken out, with regard to : (*a*) Their names ; (*b*) Employment or occupation ; (*c*) Schools attended by their children ; or (*d*) As to any persons not living in such house, but employed therein ;

(9,) The making it an offence under the Public Health Acts for any person inhabiting any part of a house which has been infected by small-pox, and who, knowingly, associates with other persons without previously having his (or her) person and clothes cleansed and disinfected to the satisfaction of the Sanitary Authority ;

Etc. ; etc. ; etc.

This indifference to vaccination is leading to very large amounts of money being spent in the provision of isolation hospitals, and such hospitals are again proving to be themselves an actual danger by disseminating the disease in their immediate neighbourhoods, either by aerial convection of the contagium,

or through mal-administration. That a small-pox hospital may prove a danger in this way is beyond all dispute, and fully justifies the position taken up by the Local Government Board in their Memorandum, *viz.*, that no small-pox hospital shall be erected so as to have : (*a*) Within a quarter mile radius, any hospital, workhouse, asylum, or any similar establishment, or population of as many as 200 persons ; or (*b*) Within a half mile radius, a population of as many as 600 persons, whether in one or more institutions or dwelling-houses. The Board will do well to rigorously maintain this position in regard to this question of the danger of small-pox hospitals.

The Imperial Vaccination League, under the presidency of His Grace the Duke of Fife, K.T., has been founded during the year.

MALARIA AND ITS PREVENTION. (See article, p. 451).

TYPHOID FEVER AS A DUST-BORNE DISEASE.

The late Boer war has brought forward the subject of typhoid fever, not only as it is to be met with in the army, but also at home. Statistics are accumulating to show that it is not entirely a water-carried disease, but may be spread in other ways. Drs. Firth and Horrocks, of the Netley Hospital and the Army Medical Department, have published important experiments, from which the following conclusions may be drawn :—

(1,) The germ of typhoid, when placed in soil, does not appear to grow, but can be washed by water (*e.g.*, rain) through at least 18 inches of soil.

(2,) The germ is able to assume a vegetative or saprophytic existence in ordinary and sewage-polluted soil, and survive therein as long as seventy-four days—the nature of the soil not being important (*e.g.*, organically polluted, virgin, receiving dilute sewage or rainwater), but the presence of water prolonging the period of infection.

(3,) Typhoid-polluted soil (when dry) may be the means of spreading the disease by being blown about as dust by winds and air-currents, *e.g.*, dust storms in South Africa.

(4,) The germs can be carried by house-flies (heads, legs, wings, or bodies).

(5,) Typhoid-infected khaki drill or serge, blue serge, etc., when dried, may retain active infection for upwards of seventy days.

(6,) The germs, though exposed to direct sunlight, in surface soil may survive as long as 122 hours, or even for twenty-one consecutive days' intermittent exposure.

(7,) The germs are not destroyed by any biological process, nor are they retained in the aerobic filters, so that an effluent from a septic tank, or biological filter, may prove a danger to health by the presence therein of actual typhoid germs, if allowed to pass into a drinking water supply, unless such drinking

supply is subjected afterwards to careful sand filtration on a large scale.

When it is remembered that each typhoid patient may give rise during illness to an enormous amount of infection, *e.g.*, by the fæces and urine, the important bearing of the above conclusions upon practical sanitary work cannot be over-stated, and should seal the fate of all conservancy methods of sewage disposal (more especially the superficial trench system in vogue in India), and emphasize the fact that finality is not yet reached, even in connection with the subject of the bacterial treatment of sewage. Dry earth and pail closets (not to mention privies) are replete with danger to the public health, and the sooner certain important towns in England and elsewhere realize this fact, the better.

TUBERCULOSIS AND ITS PREVENTION.

The campaign against consumption still continues. That spitting in streets, in public conveyances, etc., is not only a filthy and disgusting practice, but also an actual danger to health on account of the germs of consumption (when dried) being blown about as dust, is being more and more realized, and an anti-spitting crusade is forming.

Koch's startling statement that bovine and human tuberculosis are different diseases, and, practically, not intercommunicable, remains uncontradicted, or, at least, has not yet been proved to be wrong. This is the more remarkable as a period of eighteen months has elapsed since the statement was made. Indeed, Koch has himself again repeated the statement before the International Central Bureau for the Prevention of Tuberculosis held during the year at Berlin, adding that he sees no reason to alter his opinion in any way. Important issues are at stake, as stringent precautions are at present taken to prevent the consumption of tuberculous meat and milk, and if Koch's statement be true, such precautionary measures are uncalled for, because unnecessary. Meanwhile the Royal Commission appointed by the English Government in 1901 is taking evidence, and making investigations on the subject, and has not yet issued any report, interim or otherwise. The sanitary world must be prepared to exercise still more patience.

PTOMAINE POISONING FROM MEAT.

A sharp outbreak of ptomaine-poisoning at Derby in September, 1902, has again drawn attention to this interesting, but little understood disease. It is supposed that in ptomaine-poisoning some bacterial or bacterio-chemical change takes place in the constituents of food, with the formation of so-called ptomaines (? alkaloids), giving rise to poisonous symptoms in persons partaking thereof. The Derby case has been carefully investigated and reported upon, and the conclusions arrived at are

worthy of being set out categorically as a guide for future investigators, and as a matter of scientific interest. Thus :—

(1,) The outbreak, which affected about 200 persons, of whom four died, was due to a pathogenic bacillus (closely allied to the bacillus enteritidis of Gaertner), which gained entrance into pork pies, which were made on September 2nd, 1902, through the fæcal pollution of the meat (before it was baked), as it stood in the chopping house in open vessels—such fæcal pollution being derived from large intestines of pigs which were brought into, and cleansed in, such chopping house at the same time that the chopped meat was waiting for the next process in connection with pork pie making.

(2.) The practical lessons to be learnt from the Derby outbreak are : (*a*) The necessity for absolute cleanliness in all branches or processes of pork pie preparation so as to prevent the meat (or jelly) becoming infected ; (*b*) To find out some method by which the baking of meat pies may be conducted so as to ensure that the central parts of the pie are invariably raised to a temperature sufficient to cause the death of the bacteria which are liable to contaminate the meat ; (*c*) The prohibition of the addition of preservatives to the jelly which is added to the pies.

In connection with these preventive measures it is obvious that sanitary authorities should have powers to make, and enforce, regulations in regard to the preparation of pork pies, as well as that of many other articles of food, thereby guaranteeing constant supervision of all processes incidental to such trades. So, too, the kitchens of restaurants, hotels, dining rooms, coffee houses, etc., require, and are beginning to receive more attention, with much benefit to the public health by ensuring greater purity of the foods prepared for consumption. The symptoms of ptomaine poisoning are rapid onset, shivering, giddiness, headache, vomiting and diarrhœa, drowsiness, and extreme prostration. The incubation period varies from a few hours to a few days, and the patient either dies or has a protracted convalescence.

DANGER FROM ICE-CREAMS.

An important legislative enactment has been passed during 1902 dealing with ice-creams manufactured and offered for sale within the Administrative County of London. The ordinary method of making ice-cream as sold in the streets is to boil milk with or without the addition of some form of starch, together with a certain quantity of eggs, sugar, and flavouring. This mixture is allowed to cool naturally, and afterwards is frozen. The cooling may take place under most unsavoury conditions, *e.g.*, in a crowded living room, a disused (and unclean) outhouse, a confined and dirty back yard, or even a w.c. ; whilst, in addition, the surroundings in which the ingredients may be mixed, in some instances, baffle description. Added

to all this, the vendors and makers are generally "foreigners" whose ideas of cleanliness, whether personal or otherwise, differ materially from the English standard. Bearing these facts in mind it will readily be conceded that the ice-cream when sold may be contaminated in such a way as to be a danger, when consumed, to the public health, and many outbreaks of infectious disease and ptomaine poisoning have been from time to time (and recently in the City of London) proved to be directly connected with the consumption of infected ice-creams. To minimise these dangers the London County Council (General Powers) Act, 1902, which came into force on November 1st, 1902, lays down in sections 42-45 conditions under which ice-creams or other similar commodities are to be manufactured and sold. Such commodities must not be manufactured, sold, or stored in any cellar, shed, or room in which there is any inlet or opening to a drain, or which is used as a living room or sleeping room. Special precautions must be taken against infection or contamination of the ingredients used in the process of manufacture, including the notification forthwith to the Medical Officer of Health of the district of any outbreak of infectious disease amongst the persons employed in the business, or living (or working) in, on, or about the premises used for such business. The name and address of the manufacturer must be exhibited in a legible manner on a conspicuous part of the barrow of an itinerant vendor. The separate ingredients used in the manufacture of ice-creams, etc., are, as a rule, sound and fit for human consumption, but when being made up are liable to contamination with the production of ptomaines. The above remarks apply to the *ordinary* ice-cream. The better class ice-cream is made of cream or milk with a small quantity of gelatine, fruit, and sugar, the mixture being at once frozen. In this case there is no preliminary boiling with the subsequent natural cooling previous to freezing. Boiling certainly sterilizes, but during cooling germs of all sorts may gain access to the mixture.

EXPERIMENTS WITH DISINFECTANTS.

The results of some important experiments carried out for the London County Council by Drs. Klein, Houston, and Gordon, have been published during 1902. The experiments have reference to various disinfectants under the ordinary conditions of use in dwelling-houses. Fluid disinfectants used were carbolic acid, bleaching powder, corrosive sublimate, permanganate of soda; whilst formalin and sulphurous acid were the gaseous disinfectants experimented with. The germs of enteric fever, diphtheria, cholera, and tuberculosis were selected, and these in solutions of broth, milk, or melted gelatin, were placed on cloth, wood (unvarnished or unpainted), linen, and wall-paper. Formalin vapour proved superior to sulphurous acid in the case of tuberculous sputum, dried on linen and paper; whilst formalin

and sulphurous acid failed in the case of wood and cloth charged with spores, but were successful in the case of linen and paper—in the former case, the infected solutions used soaked in, and in the latter case were limited to the surface. Corrosive sublimate (1 in 1,000) destroyed all microbes ; and carbolic acid (5 per cent solution) all but anthrax spores. Length of exposure was twenty-four hours in each case. Condy's fluid (5 teaspoonfuls to the pint) was ineffective, whilst bleaching powder practically only destroyed the less resistant forms of microbes (though it proved highly successful with anthrax spores on linen and paper).

In conclusion, it may be summed up from the experiments :—

(1,) That for highly resistant organisms (anthrax spores), corrosive sublimate is alone absolutely certain.

(2,) For tubercle bacilli, both corrosive sublimate and carbolic are efficacious.

(3,) That Condy's fluid (permanganate of soda) and bleaching powder are practically useless even in the case of slightly resistant organisms, in connection with which the other disinfectants (*e.g.*, formalin, sulphurous acid, corrosive sublimate, carbolic) are fairly satisfactory.

Further experiments will be carried out, dealing with some of the other well-known disinfectants. Practical evidence is accumulating to show that disinfection by spraying (every portion of the surface to be disinfected being thoroughly moistened with the fluid disinfectant used) is the most trustworthy, and allows of disinfection being effected in the minimum of time and with the minimum of expense. Anything over a 2 per cent formalin, or a 1 per cent chinosol, solution is sufficient.

CLASSIFICATION OF CAUSES OF DEATH.

It is desirable that medical practitioners should use, in their certificates of death, only those terms which are recognized by the Royal Colleges of Physicians. The cause of death should be stated precisely and briefly—English names for diseases to be used in preference to their equivalents in other languages. Vague terms such as *decline*, *consumption*, *tabes*, *cachexia*, etc., should be avoided ; and *hæmorrhage* should not be assigned as the cause of death without indication of its origin and probable cause. *Dropsy* should never be returned as the cause of death without particulars as to its probable origin, *e.g.*, in disease of the heart, liver, kidneys, etc. *Rubeola* should be discontinued as a synonym for measles—the term "*morbilli*" being the only Latin equivalent for this disease recognized by the Royal Colleges of Physicians. *Puerperal fever* should no longer be used as a term, but the words *pyæmia*, *septicæmia*, or *sapræmia*, with the adjectival prefix "*puerperal*" to show that such diseases have occurred in puerperal women. In *small-pox* deaths, particulars should be given as far as possible as to the states of vaccination and revaccination of the patients, *e.g.*, no evidence

of vaccination, vaccinated in infancy only (with number of scars), vaccinated after infection, stated to have been vaccinated (but no scars), etc. *Diarrhœa* (in epidemic form) is a disease of a specific character, and should be designated by one or other of the following terms: *epidemic* (or *zymotic*) *enteritis, epidemic* diarrhœa; whilst the misleading terms *gastro-enteritis, muco-enteritis, gastric catarrh,* etc. must be discontinued as synonyms of epidemic diarrhœa. *Carcinoma* is to be distinguished from *sarcoma* in connection with malignant diseases. Of the tuberculous diseases, the word *phthisis* is somewhat ambiguous, and instead the terms *pulmonary tuberculosis* or *tuberculous phthisis* are to be preferred. *Tabes mesenterica* as a tuberculous disease of the peritoneum is also a vague term, being used to denote various other wasting diseases (non-tuberculous), and the better designation is *tuberculous peritonitis*. As to hydrocephalus, the source must be defined, *e.g.*, tuberculous, congenital, etc. The word "*convulsions*" should never be used as a cause of death, unless it is impossible to certify the cause of such. In certifying deaths from *paralysis*, a distinction must be made between (1) brain paralysis, and (2) paraplegia. In *acute pneumonia*, there are three separate forms, *viz.*, croupous (or lobar), broncho (or lobular), and epidemic. *Typhoid pneumonia* is to be discarded as a disease. The term "*croup*" should never be used for denoting non-diphtheritic affections of the larynx or trachea, but the adjectival prefixes "diphtheritic," or "membranous," used as required.

When death occurs, from whatever disease, within one month of *parturition* or *miscarriage*, the fact of the antecedent state should be mentioned; whilst in all cases of death from violence, or suspected violence, the friends of the deceased should be advised by the medical practitioner to inform the Coroner. Finally, when the cause of death has been verified by a post mortem examination, the letters P.M. should be added.

The subjoined revised list of causes of deaths is the one used in the Annual Reports of the Registrar-General for England and Wales, and has been condensed from the nomenclature of diseases of the Royal College of Physicians, with the addition of certain unofficial terms still in common use, but which are objectionable either as being the names of symptoms merely, or as being otherwise indefinite :—

GENERAL DISEASES.

Small-pox { Vaccinated / Not Vaccinated / Doubtful	Scarlet Fever
Cow-pox. Effects of Vaccination	Typhus
Chicken-pox	Plague
Measles (Morbilli)	Relapsing Fever
Epidemic Rose Rash	Influenza
,, German Measles	Whooping-cough
	Mumps
	Diphtheria, Membraneous Croup

GENERAL DISEASES—*continued*

Cerebro-spinal Fever
Simple Continued Fever
Enteric Fever
Asiatic Cholera
Epidemic Diarrhœa
,, Enteritis (or Zym.)
Diarrhœa, Choleraic Diarrhœa
Dysentery
Malarial Fever
Hydrophobia
Glanders, Farcy
Anthrax, Splenic Fever
Tetanus
Syphilis
Gonorrhœa, Stricture of Urethra
Puerperal Septicæmia, Sapræmia
Puerperal Pyæmia
Puerperal Phlegmasia Dolens
Puerperal Fever
Infective Endocarditis
Epidemic Pneumonia, Pneumonic Fever
Erysipelas
Septicæmia (not Puerperal)
Pyæmia (not Puerperal)
Phlegmon, Carbuncle (not Anthrax)
Phagedæna
Other Septic Diseases
Tuberculous Phthisis (Pulm. Tuber.)
Phthisis
Tuberculous Meningitis
Tuberculous Peritonitis
Tabes Mesenterica
Lupus
Tubercle of other organs
General Tuberculosis
Scrofula
Parasitic Diseases
Starvation
Scurvy
Alcoholism, Delirium Tremens
Opium, Morphia Habit
Ptomaine Poisoning
Industrial Poisoning by Lead, by Phosphorus, by Arsenic and other Metals
Rheumatic Fever, Acute Rheumatism
Rheumatism of Heart
Chronic Rheumatism
Rheumatic Arthritis, Rheumatic Gout
Gout
Carcinoma
Sarcoma
Malignant Disease, Cancer
Rickets
Purpura
Hæmophilia, Hæmorrhagic Diathesis
Anæmia, Leucocythæmia
Diabetes Mellitus
Premature Birth
Congenital Defects
Injury at Birth
Atelectasis
Want of Breast Milk

Teething.

LOCAL DISEASES.

Diseases of Nervous System.

Meningitis, Inflammation of Brain
Softening of Brain
General Paralysis of Insane
Insanity (not Puerperal)
Chorea
Epilepsy
Convulsions
Laryngismus Stridulus
Locomotor Ataxy
Paraplegia and Diseases of Cord
Neuritis, Periph. Poly-neuritis
Brain Tumour (not Specific)

Nervous System, other Diseases.

Diseases of Organs of Special Sense.

Otitis, Mastoid Disease
Epistaxis, Nose Disease

Ophthalmia, Eye Disease.

Diseases of Heart.

Valve Dis., Endocarditis (not infective)	Angina Pectoris
Pericarditis	Dilatation of Heart
Hypertrophy of Heart	Fatty Degeneration of Heart
	Syncope, Heart Disease (not spec.)

Diseases of Blood Vessels.

Cerebral Hæmorrhage, Emb. Throm.	Embolism, Thrombosis (not Cerebral)
Apoplexy, Hemiplegia	Phlebitis
Aneurysm	Varicose Veins
Senile Gangrene	Blood Vessels, other Diseases

Diseases of Respiratory Organs.

Laryngitis	Lobar, Croupous Pneumonia
Membranous Laryngitis (not Diphtheritic)	Broncho, Catarrhal, Lobular Pneumonia
Croup (not Spasmod. or Membr.)	*Pneumonia*
Larynx, other Disease (not specified)	Emphysema, Asthma
Bronchitis	Pleurisy
	Fibroid Disease of Lung

Respiratory Diseases, other.

Diseases of Digestive System.

Tonsillitis, Quinsy	Hernia
Mouth, Pharynx, Disease (not spec.)	Intestinal Obstruction
Gastric Ulcer	Other Diseases of Intestines
Gastric Catarrh	Peritonitis (not Puerperal)
Stomach, other Dis. (not Malig.)	Cirrhosis of Liver
Enteritis (not Epidemic)	Liver and Gall-bladder, other Diseases
Gastro-enteritis	
Appendicitis, Perityphlitis	Digestive System, other Diseases

Lymphatic Diseases.

Spleen Disease	Thyroid Body Disease
Lymph. System, other Diseases	Supra Renal Capsules Disease

Diseases of Urinary System.

Nephritis, Acute	Calculus (not Biliary)
Chronic Bright's Disease, Albuminuria	Bladder and Prostate Disease
	Urinary System, other Diseases

Diseases of Generative System.

Ovarian Tumour (not Malig.)	Other Diseases of Uterus and Vagina
Other Diseases of Ovary	Disorders of Menstruation
Uterine Tumour (not Malig.)	

Gener. and Male Orgs., other Dis.

Accidents, Childbirth.

Abortion, Miscarriage	Placenta Prævia, Flooding
Puerperal Mania	Other Accidents of Pregnancy and Childbirth
Puerperal Convulsions	

JOINT DISEASES.

Caries, Necrosis	Arthritis, Periostitis

Other Diseases of Locomotor System.

SKIN DISEASES.

Ulcer, Bedsore	Pemphigus
Eczema	Skin Diseases, other

N.B.—Terms printed in *italics*, being the names of symptoms merely, or being otherwise objectionable, should be used in medical certificates only when precise information is wanting.

DUST AND SMOKE PREVENTION.

The importance of dust as a factor in the causation of ill-health and actual disease has been much emphasized during the past year at Congresses and elsewhere. At Manchester, in connection with the Sanitary Institute Congress, the power of dust to travel was explained by Sir James Crichton Browne, who stated that the large amount of dust belched forth from La Souffriére and Mont Pelée was probably being added, at the time of the Congress, to the smoke of Manchester. Dust must be collected and removed, showing the need (now well recognized) for municipal cleanliness (in its widest sense), *e.g.*, the laying out of roads with hard and practically impermeable paving in thickly populated districts, instead of with defective stone and ordinary macadam ; the hosing down with water of all crowded courts and alleys, small streets, etc., so as to lay the dust and in part remove it into the sewers ; the previous wetting of roads and streets before the brooms are applied thereto ; the need for wet dusting (*i.e.*, dusting with a damp cloth) in private houses, public institutions, etc. Collected dust should be burnt.

As an offshoot of the dust question, the problem of smoke and its preventives suggested itself, as was only natural. The difficulties surrounding this question are well-known, and the part played by the domestic chimney, as opposed to the factory chimney, must not be lost sight of.

DESTRUCTORS AND SOME RECENT IMPROVEMENTS.

Some new departures in the designing and construction of refuse destructors have recently been put forward by the Horsfall Company. It is now established that a destructor *per se* is not a nuisance, and may be placed in the midst of a crowded and densely populated neighbourhood without causing trouble, provided the destructor plant is constructed on scientific principles, and is at all times regularly and properly attended to.

The points to be remembered are :—

(1,) High temperature in furnaces and flues, with complete combustion of all solids and of all generated gases.

(2,) Prevention of the escape of fine dust and grit from the chimneys into the atmosphere.

(3,) Economy of working, including the utilisation to the full of all heat produced from the burning of the refuse, as well as of the resulting clinkers (*e.g.*, mortar, flag making, etc.)

(4,) Simplicity of plant and working.

To secure these points is the object of the new departures. Thus (1) An overhead single rail formed of an H iron is useful for the removal of the clinker in buckets from the furnaces—a separate rail being laid direct from each furnace to the tipping place. The red-hot clinker is raked directly from the furnace into the buckets, which then at once, and with great facility and ease, run along the overhead rails to the tipping place. The patent is Cox and McTaggart's. (2) Direct tipping from refuse carts into the furnace without any handling. (3) Centrifugal dust-catchers in the form of circular brick buildings, lined with fire brick, and fitted in the centre with an inner cylindrical chamber with arched openings communicating with the surrounding annular space. The main flue enters this annular chamber tangentially at the bottom, so that the gases have to pass around and upwards through this annular space before they enter the central chamber, from the bottom of which they pass onwards to the boilers or to the byepass flues, as may be desired. In this way the fine dust is deposited and collected in pockets at the base of the catcher, and can be readily removed therefrom from time to time by means of cleaning doors. The temperature inside a catcher may be 1,000° F. to 2,000° F. (4) The production of forced draughts on the *plenum* principle by means of steam jets for the production of high glowing temperatures. (5) An automatic arrangement by which the blast is cut off when the door of the furnace is opened for clinkering purposes.

Books of the Year.

A List of the Principal Medical Works Published During the Year 1902—Chiefly American.

Abdominal Hernias, Atlas and Epitome of. George Sultan, M.D. 277 pages. Illustrated. Cloth. $3. Saunders

Anæmia and Diseases of the Blood-forming Organs and Ductless Glands. Byron Bramwell, M.D. 8vo. 450 pages. Cloth. $3. Wood

Anatomy, Guide to Dissections and Practical. W. T. Eckley. Octavo. 402 pages. Illustrated. Cloth. $3.50. Lea Bros.

Anatomy and Physiology for Nurses, A Text-Book of. D. C. Kimber. New Edition. 8vo. 292 pages. Cloth. $2.50. Macmillan

Anatomy, Text-Book of. Henry Morris, F.R.C.S. 3d Edition. Octavo. Illustrated. Cloth. $6. Blakiston

Anatomy, Text-Book of. F. H. Gerrish, M.D. 2d Edition. 8vo. 937 pages. Illustrated. Cloth. $6.50. Lea Bros.

Anatomy, Text-Book of. D. J. Cunningham, F.R.S., M.D. 8vo. 1,309 pages. Illustrated. Cloth. $9. Macmillan

Aseptic Surgical Technique. H. Robb, M.D. Revised Edition. 8vo. Illustrated. $2. Lippincott

Assimilation, Digestion, etc., Disorders of. Lander Brunton, M.D. 8vo. 515 pages. Illustrated. Cloth. $4. Macmillan

Bacteriology, Manual of. R. T. Hewlett, M.D. 2d Edition. Illustrated. Cloth. $4. Blakiston

Bacteriology, Principles of. A. C. Abbott, M.D. 6th Edition. 12mo. 636 pages. Illustrated. Cloth. $2.75. Lea Bros.

Bacteriological Technique. J. W. H. Eyre, M.D. Octavo. 375 pages. Illustrated. Cloth. $2.50. Saunders

Bandaging, The Principles and Practice of. G. G. Davis, M.D. 2d Edition. Octavo. Illustrated. Cloth. $1.50. Blakiston

Bandage, The Roller. W. B. Hopkins, M.D. 5th Edition. 12mo. Illustrated. $1.50. Lippincott

Chemistry, An Introduction to. D. S. MacNair, Ph.D. 12mo. 199 pages. Cloth. 50 cents. Macmillan

Chemistry, Medical Students' Manual of. R. A. Witthaus, M.D. 5th Edition. Illustrated. Octavo. 689 pages. Cloth. $3.50. Wood

Chemistry, Physiological and Pathological. G. Bunge, M.D. Edited by E. H. Starling, M.D. Octavo. 470 pages. Cloth. $3. Blakiston

Chemistry, Practical. Abegg and Herz. Translated by H. B. Calvert. 12mo. 131 pages. Cloth. $1.50. Macmillan

Chemistry, The Elements of Physical. H. C. Jones. 8vo. 576 pages. Cloth. $4. Macmillan

Chemistry, The Principles of Inorganic. Wm. Ostwald. Translated by Alex. Findlay. 8vo. 812 pages. Cloth. $6. Macmillan

Childbed Nursing, with Notes on Infant Feeding. Charles Jewett, M.D. 5th Edition. 12mo. 96 pages. Cloth. 80 cents. Treat

Child, Later Infancy of the. G. Compayré. 12mo. Cloth. $1.20. Appleton

Children, Diseases of. Marcus P. Hatfield, M.D. 2d Edition. 12mo. Cloth. 80 cents. Blakiston

Children and Infants, Diseases of. Henry Koplik. Octavo. 675 pages. Illustrated. Cloth. $5. Lea Bros.

Climates and Baths of Great Britain. Volume II. C. T. Williams, M.D. 634 pages. Cloth. $4. Macmillan

Clinical Diagnosis. C. E. Simon, M.D. 4th Edition. Octavo. 608 pages. Illustrated. Cloth. $3.75. Lea Bros.

Clinical Medicine. A Text-Book of. The Principles of Diagnosis. C. Bartlett, M.D. 976 pages. Illustrated. Cloth. $7. Boericke & Tafel

Death and Sudden Death. P. Brouardel. Translated by F. L. Benham, M.D. 2d Edition. Octavo. 343 pages. Cloth. $3. Wood

Dermatology, An Introduction to. Norman Walker, M.D. Octavo. 263 pages. Illustrated. Cloth. $3. Wood

Diagnosis, Practical. H. A. Hare, M.D. 5th Edition. Octavo. 727 pages. Illustrated. Cloth. $5. Lea Bros.

Diet and Food. Alex. Haig, M.D. 4th Edition. 12mo. Cloth. $1. Blakiston

Digestive Glands, The Work of the. Prof. P. J. Pawlow. 8vo. Illustrated. $2. Lippincott

Digestive Tract, Diseases of. Stomach 1 vol. **Intestines** 2 vols. J. C. Hemmeter, M.D. Octavo. Illustrated. Cloth. $5 each. Blakiston

Disease, Origin of. A. W. Meigs, M.D. 8vo. Illustrated, $5. Lippincott

Disinfection and Disinfectants. M. J. Rosenau, M.D. 12mo. Illustrated. Cloth. $2. Blakiston

Ear, A Text-Book of the Diseases of the. A. Politzer. 4th Edition. Octavo. 896 pages. Illustrated. Cloth. $7.50. Lea Bros.

Ear, Essentials of Diseases of the. E. B. Gleason, M.D. 3d Edition. 16mo. 214 pages. Illustrated. Cloth. $1. Saunders

Ear, The. Gorham Bacon, M.D. 3d Edition. 12mo. 436 pages. Illustrated. Cloth. $2.25. Lea Bros.

Electro-Chemistry, Text-Book of. S. Arrhenius. Translated by Jno. McCrea, Ph.D. 8vo. Illustrated. $3.50. Longmans

Embryology, Manual of Human. J. P. McMurrich, Ph.D. 500 pages. Illustrated. Cloth. $3. Blakiston

Eye, Nose, Throat and Ear, A Treatise on the. W. C. Posey and J. Wright. Octavo. 1,250 pages. Illustrated. Cloth. $7. Lea Bros.

Eye, A Text-Book of Diseases of the. G. E. De Schweinitz, M.D. 4th Edition. Octavo. 773 pages. Illustrated. Cloth. $5. Saunders

Feeding, Theory and Practice of Infant. H. D. Chapin, M.D. Octavo. 328 pages. Illustrated. Cloth. $2.25. Wood

Fevers, The Therapeutics of. H. C. Allen, M.D. 543 pages. Cloth. $4. Boericke & Tafel

Food and the Principles of Dietetics. Robt. Hutchinson, M.D. Octavo. 566 pages. Illustrated. Cloth. $3. Wood

Fractures, The Treatment of. C. L. Scudder, M.D. Octavo. 480 pages. Illustrated. Cloth. $4.50. Saunders

Fractures, Treatment of. Wm. L. Estes, M.D. 12mo. 224 pages. Illustrated. $2. International Journal of Surgery

Friction and Movement, The Treatment of Injuries by. W. P. Hood, M.D. 12mo. 188 pages. Cloth. $1.25. Macmillan

Gall-Stones, The Medical Treatment of. J. H. Keay, M.D. 12mo. Cloth. $1.25. Blakiston

Genito-urinary Diseases and Syphilis. H. H. Morton, M.D. Octavo. 372 pages. Cloth. $3. Davis

Genito-urinary Surgery and Venereal Diseases. J. W. White, M.D., and Ed. Martin, M.D. New Edition. 8vo. Illustrated. Cloth. $6. Lippincott

Gynecology, A Treatise on the Principles of. E. C. Dudley, M.D. 3d Edition. Octavo. 756 pages. Illustrated. Cloth. $5. Lea Bros.

Gynecology, Manual of. H. T. Byford, M.D. 12mo. Illustrated. Cloth. $3. Blakiston

Gynecology, Technique of Surgical. A. H. Goelet, M.D. 8vo. 340 pages. Illustrated. $2. International Journal of Surgery

Head and Neck, Regional Anatomy of the. W. T. Eckley, M.D. Octavo. 240 pages. Illustrated. Cloth. $2.50. Lea Bros.

Heart, The Schott Methods of the Treatment of Chronic Diseases of the. W. B. Thorne, M.D. 4th Edition. Octavo. Illustrated. $2. Blakiston

Hernia: Its Etiology, Symptoms and Treatment. W. McA. Eccles, M.S. 2d Edition. 8vo. 250 pages. Illustrated. Cloth. $2.50. Wood

Histology, A Text-Book of. L. Szymonowicz. Translated by J. B. MacCallum, M.D. Octavo. 437 pages. Cloth. $4.75. Lea Bros.

Histology, Essentials of. Louis Lerry, M.D. 2d Edition. 16mo. 263 pages. Illustrated. Cloth. $1. Saunders

Hygiene, A Treatise on Practical. Chas. Harrington. Octavo. 755 pages. 2d Edition. Illustrated. $4.25. Lea Bros.

Infants, Artificial Feeding of. C. F. Judson, M.D., and J. C. Gittings, M.D. 12mo. $2. Lippincott

Insanity, A Practical Manual of. D. R. Brower, M.D., and H. M. Bannister, M.D. Octavo. 426 pages. Cloth. $3. Saunders

Malarial Fever: Its Cause, Prevention and Treatment. Ronald Ross, F.R.C.S. 8vo. Illustrated. Cloth. 75 cents. Longmans

Practitioners' Manual. C. W. Allen, M.D. 2d Edition. Octavo. 855 pages. Half Morocco. $7. Wood

Massage and the Original Swedish Movements. K. W. Ostrom. 5th Edition. 12mo. Illustrated. Cloth. $1. Blakiston

Massage, A Treatise on. Douglas Graham. 3d Edition. 8vo. Illustrated. $4. Lippincott

Materia Medica and Pharmacology. D. M. R. Culbreth. 3d Edition. Octavo. 912 pages. Illustrated. Cloth. $4.75. Lea Bros.

Materia Medica, Pharmacy and Therapeutics, A Hand-Book of. S. O. L. Potter, M.D. 9th Edition. Octavo. Cloth. $5. Blakiston

Materia Medica, Pocket Manual of Homœopathic. Wm. Boericke, M.D. 572 pages. Leather. $3. Boericke & Tafel

Materia Medica, Therapeutics and Pharmacology, A Text-Book of. G. F. Butler, M.D. 4th Edition. Octavo. 896 pages. Illustrated. Cloth. $4. Saunders

Medical Annual, International, 1902. A Year-Book of Treatment. 20th Issue. 8vo. 738 pages. Illustrated. Cloth. $3. Treat

Medicine, A Text-Book of Practical. W. G. Thompson, M.D. Octavo. 1,014 pages. Illustrated. Cloth. $5. Lea Bros.

Medicine, Practice of. C. H. Fagge, M.D. 4th Edition. Edited by P. H. Pye–Smith, M.D. 2 vols. Octavo. Cloth. $6 each. Blakiston

Medical Jurisprudence and Toxicology. J. H. Reese. 6th Edition. Edited by Henry Leffman, M.D. 12mo. $3. Blakiston

Microscopy, Medical. T. E. Oertel, M.D. 12mo. Illustrated. Cloth. $2. Blakiston

Morphinism and Narcomania. T. D. Crothers, M.D. 12mo. 351 pages. Cloth. $2. Saunders

Mosquito Brigades, and How to Organize Them. Ronald Ross, F.R.C.S. 8vo. 90 cents. Longmans

Mother and Child. Edward P. Davis, M.D. 12mo. Illustrated, $1.50. Lippincott

Mouth and Teeth, Anatomy and Histology of the. I. N. Broomell. M.D. 2d Edition. Octavo. Illustrated. Cloth. $4.50. Blakiston

Nerves, The Healing of. C. A. Ballance, M.S., and P. Stewart, M.D. 122 pages. Illustrated. Cloth. $4.50. Macmillan

Neurasthenia, Clinical Lectures on. T. D. Savill, M.D. 2d Edition. 186 pages. Cloth. $1.50. Wood

Neurology, Stepping Stones to. E. R. McIntyer, M.D. 205 pages. Cloth. $1.25. Boericke & Tafel

Nose and Throat Work for the General Practitioner. Geo. L. Richards, M.D. 8vo. 250 pages. $2. International Journal of Surgery

Nose, Pharynx and Ear, Diseases of the. Henry Gradle, M.D. Octavo. 547 pages. Illustrated. Cloth. $3 50. Saunders

Nose, The Accessory Sinuses of the. A. L. Turner, M.D. 8vo. $4. Longmans

Nothnagel's Practice. American Edition. 3 vols. issued. Cloth. $5 each. Saunders

Nursing, Text-Book of. Clara Weeks-Shaw. 3d Edition. 12mo. Cloth. $1.75. Appleton

Obstetrics, A Text-Book of. H. J. Garrigues, M.D. Illustrated. Cloth. $5. Lippincott

Obstetrics, Hand-Book of Practical. E. Reynolds and F. S. Newell. Octavo. 531 pages. Illustrated. Cloth. $3.75. Lea Bros.

Obstetrics, The American Text-Book of. Edited by R. C. Norris, M.D. 2d Edition. Octavo. 2 vols. 600 pages each. Illustrated. Cloth. $3.50 each. Saunders

Otology, Atlas and Epitome of. Gus. Bruhl, M.D. Edited by S. Mc. C. Smith, M.D. 292 pages. Illustrated. Cloth. $3. Saunders

Pancreas, Diseases of the, and Their Surgical Treatment. A. W. Mayo Robson and B. G. A. Moynihan. Octavo. 293 pages. Illustrated. Cloth. $3. Saunders

Paresis, General. Practical and Clinical, R. H. Chase, M.D. 12mo. Illustrated. Cloth. $1.75. Blakiston

Pathology and Hygiene, Manual of Antenatal. J. W. Ballantyne, M.D. Octavo. Illustrated. Cloth. $5. Wood

Pathology, General Compend of. A. E. Thayer, M.D. Illustrated. 12mo. Cloth. 80 cents. Blakiston

Pathology and Pathological Anatomy. 6th Edition. Edited by Jas. Ewing, M.D. Translated by A. E. Thayer, M.D. Octavo. 602 pages. Illustrated. Cloth. $4. Lea Bros.

Pathology, Lectures on Chemical. C. A. Herter, M.D. 12mo. 473 pages. Cloth. $1.75. Lea Bros.

Pathology, Special Compend of. A. E. Thayer, M.D. Illustrated. 12mo. Cloth. 80 cents. Blakiston

Pharmacology, A Text-Book of. A. R. Cushny. 3d Edition. Octavo. 750 pages. Illustrated. Cloth. $3.75. Lea Bros.

Physical Diagnosis. G. A. Gibson, M.D., and Wm. Russell, M.D. 12mo. Illustrated. Cloth. $3. Appleton

Physical Diagnosis, A Text-Book of. E. Le Fevre, M.D. 12mo. 450 pages. Illustrated. Cloth. $2.25. Lea Bros.

Physics, A Text-Book of. R. A. Lehfeldt. 8vo. Illustrated. $2. Longmans

Physiology, Compend of. A. P. Brubaker, M.D. Illustrated. 12mo. Cloth. 80 cents. Blakiston

Physiology, Kirk's Hand-Book of. 17th American Edition. Revised by W. H. Rockwell, Jr., M.D., and C. L. Dana, M.D. Octavo. 865 pages. Illustrated. Cloth. $3. Wood

Poisons, Memoranda of. T. H. Tanner, M.D. 9th Edition. Revised by Henry Leffman, M.D. 12mo. Cloth. 75 cents. Blakiston

Psychiatry, Clinical. A. R. Defendorf, M.D. 8vo. 431 pages. Illustrated. Cloth. $3.50. Macmillan

Rectum and Anus, Diseases of the. S. G. Gant, M.D. 2d Edition. Octavo. 700 pages. Cloth. $5. Davis

Rectum, The Surgery of the. C. B. Kelsey, M.D. 6th Edition. Octavo. 411 pages. Illustrated. Cloth. $3. Wood

Respiration, Diseases of the Organs of. Samuel West, M.D. 2 vols. 8vo. Illustrated. $10. Lippincott

Roentgen Rays in Medical Work. David Walsh, M.D. 3d Edition. Octavo. 330 pages. Illustrated. Cloth. $2.50. Wood

Sanitary Science Principles of, and the Public Health. W. T. Sedgewick, Ph.D. 8vo. 460 pages. Cloth. $3. Macmillan

Skin, A Treatise on Diseases of the. H. W. Stelwagon, M.D. Octavo. 1,125 pages. Illustrated. Cloth. $6. Saunders

Skin Cancers, Treatment of. Wm. S. Gottheil, M.D. 12mo. 67 pages. $1. International Journal of Surgery

Skin, Diseases and Therapeutics of the. J. H. Allen, M.D. 353 pages. Cloth. $2. Boericke & Tafel

Small-Pox; Illustrated. Geo. H. Fox, M.D. 2 parts. $1.50 each. Lippincott

Spectacles and Eyeglasses. R. J. Phillips, M.D. 3d Edition. 12mo. Illustrated. Cloth. $1. Blakiston

Surgery, Atlas and Epitome of Operative. O. Zuckerkandl. 2d Edition. Edited by J. C. Da Costa, M.D. 410 pages. Illustrated. Cloth. $3.50. Saunders

Surgery, A Manual of. Wm. Rose, M.B., and A. Carless, M.S. Octavo. 1,227 pages. Illustrated. Sheep. $5.75. Wood

Surgery, International Text-Book of. 2d Edition. 2 vols. Octavo. Cloth. $5. Saunders

Surgery, Regional Minor. Geo. G. Van Schaick, M.D. 8vo. 226 pages. Illustrated. $1.50. International Journal of Surgery

Surgery, The Operations of. W. H. A. Jacobson and F. J. Steward. 4th Edition. Octavo. 2 vols. Illustrated. Cloth. $10. Blakiston

Surgery, The Practice of. H. R. Wharton, M.D., and B. F. Curtis, M.D. 3d Edition. 8vo. Illustrated. Cloth. $6.50. Lippincott

Surgical Anatomy. Geo. Woolsey. Octavo. 535 pages. Illustrated. Cloth. $5. Lea Bros.

Surgical Anatomy and Operative Surgery. J. J. McGrath, M.D. Octavo. 559 pages. Sheep. $4. Davis

Surgical Subjects, Clinical Lectures on. Prof. Chris. Heath. 2d Series. 16mo. Illustrated. Cloth. $2. Blakiston

Symptoms, An Index of. 2d Edition. Ralph Winnington. Revised by Dr. Leftwitch. 12mo. 282 pages. Cloth. $2. Wood

Syphilis—A Symposium. Contributions by Seventeen Distinguished Authorities. L. Duncan Bulkley, Wm. S. Gottheil and others. 12mo. 125 pages. Cloth. $1 net. Treat

Tabetic Ataxia, The Treatment of. H. S. Frankel, M.D. Edited by L. Freyberger, M.D. Octavo. Illustrated. Cloth. $3. Blakiston

Terpenes, The. Fr. Hensler, Ph.D. Translated by F. J. Pond. 8vo. Cloth. $4. Blakiston

Therapeutics, Text-Book of Practical. H. A. Hare, M.D. 9th Edition. Octavo. 851 pages. Illustrated. Cloth. $4. Lea Bros.

Throat and Nose, Diseases of the. C. P. Grayson, M.D. Octavo. 540 pages. Illustrated. Cloth. $3.50. Lea Bros.

Traumatic Fractures and Dislocations, Atlas and Epitome of. H. Helferich. Edited by J. C. Bloodgood, M.D. 5th Edition. $3. Saunders

Urinary Analysis, Manual of. C. Mitchell, M.D. 3d Edition. 363 pages. Illustrated. $2. Boericke & Tafel

Urine, Guide to the Examination of. Jas. Tyson, M.D. 10th Edition. 12mo. Illustrated. Cloth. $1.50. Blakiston

Uterus, Cancer of the. A. H. N. Lewers, M.D. 8vo. Illustrated. Cloth. $3. Blakiston

General Index.

PAGE

ABBE. R., 89, 155, 156, 159, 298. 400, 482, 505, 613, 615, 620, 621; Abrahams, B. L., 73, 75, 76, 129, 132, 351, 580, 588; Allingham, H. W., 85. 124, 577.
Abdomen, Surgery of 95
Abdominal Contusions 96
— Disease, Simulated 97
— Operations for Myomata 315
— Section in Cancer 171, 173
— Support in Enteroptosis 295
— Surgery, Review 86
— Tumours, Phantom 97
Aborting Buboes 164
Abortion 98
— and Extra-Uterine Pregnancy ... 549
— and subsequent Pregnancy 99
— Diagnosis of 99
— Induction of 102
— Prophylaxis of... 100
— Spurious 103
— Treatment of 100
Abscess of Brain 90, 155
— of Liver and Dystentery 245, 249, 437
— of Lungs 442
— Sub-Phrenic 103
— Tropical... 104
Acetabulum, Fracture of 330
Acetanilid in Pruritus 564
Acetone found in Dementia 411
Acetozone 8
— a Surgical Dressing 9
Achalme's Bacillus in Rheumatism ... 580
Acid Carbolic, Dressings sometimes dangerous 3
Acids, dilute, in Dysentery 250
— in Dyspepsia 256
Acne 104
-- and Smallpox Differentiated ... 612
Aconite in Laryngitis 431
— in Rheumatism 585
Acromegaly in Egypt 283
Actinomycosis 107
Adenitis, Tubercular 92, 107
Adenoids 110
Adolescent Insanity 212
Adrenalin, frequent but minute doses needed 7
— Chloride in Typhoid 68, 670
— in Eye Inflammations 305
— Indications for its use... 7
— in Rhynophyma 594
— Value of... 6
After-Cataract 182
Afternoon Tea and Stomach Atony . . 259
Age, Effect of on Myopia 472
Agglutination of Blood in Malaria ... 436
— Reaction of Tubercle Bacillus ... 518

PAGE

Ahouandeme in Blackwater Fever ... 145
Air, Liquid and Hot, in Lupus... ... 660
Aix Baths in Rheumatism 589
Aix Douche-Massage in Arthritis ... 130
Ala Nasi, Collapse of 489
Albargin in Gonorrhœa 347
Albumin Diet Preparations 233
Albuminous Expectoration in Pleurisy 538
Albuminuria, Cyclical 675
-- Hypostatic 675
Albumosuria 673
Alcohol and Amblyopia 111
— and Diabetes 216
-- — Gonorrhœa 339
— — Liver Cirrhosis 193, 196
— — Plague 231
— — Typhoid 665
— — Valvular Cardiac Disease ... 372
— (applications) in Erysipelas... ... 300
-- in the Cardiac Failures of Pneumonia 544
— Clinical Value of 9, 231
— Effect on Circulation, etc. 230
— — Ganglion Cells 228
— — Muscular Activity... 228
— for Disinfecting Hands 240
— — Herpes Zoster 384
— Nutritive Value of 226
Alcoholic Intoxication and the Blood... 154
Alcoholism 110
— Apomorphine Hydrochlorate in ... 14
— Treatment of 229
Alkalies in Heart Complications of Rheumatism 535
— — Intestinal Dyspepsia 419
— — Stomach Atony 260
Alkaline Diuretics in Rheumatism ... 585
Alkalisation of the Blood in Rheumatism 592
Alopecia Areata 111
— and Dental Caries 111
Altitude, high, in Phthisis 22
Amblyopia 111
-- in Malaria 454
Amenorrhœa 465
Amœbæ in Dystentery 245, 249
Ammonal in Spasmodic Dysmenorrhœa 467
Amputation 112
Anæmia following Malaria 455
— Pernicious 113
— Splenic 136
Anæsthesia 116
— in Cardiac Cases 374
— during Sleep 13
— of Larynx 430
— Local 119
— Spinal, Disappointing Results of ... 2
Anæsthetics, Ether 28

PAGE

Anæsthetics, Ethyl Bromide 110
— Ethyl Chloride 32
Aneurysms 82, 119
— Innominate 121
— Thoracic 368
— Varicose 120
Angina, Pseudo and True 367
Anilin, Poisoning from (Used in Ear) .. 273
Ankylostomum Duodenale in Egypt ... 283
Anti-Ethylene Serum in Alcoholism 70, 110
Antifebrin in Typhoid 669
Antitoxin (Diphtheric) 13
— — by Mouth or Rectum 234
Anti-syphylitic Serum 81
Antimonial Wine in Seborrhœa ... 607
Antipneumococcus Serum of Little Use 542
Antipyrine for Diabetic Neuralgia ... 220
— in Multiple Sclerosis 604
— — Rheumatism 585
— — Spasmodic Dysmenorrhœa ... 467
Antiseptic Intestinal, Aspirin as an .. 15
— Properties of Acetozone 8
— Properties of Chloretone 21
Antiseptics, Dymal 28
— Lysol 37
— Quinine 44
— Utropin ... ... — 49
Antistreptococcic Serum in Anæmia ... 114
— — — Gonorrhœal General Infection 345
— — — Puerperal Fever 572
— — — — Insanity 72, 574
— — — Rheumatism 586
Anuria after Ether 31
Anus, Fistula of 124
Aortic Disease 364
Aphasia, Motor, after Brain Injury ... 158
Apiol in Amenorrhœa 465
Apocynum Cannabinum in Cirrhosis .. 195
Apomorphine in Alcoholism 229
— — Cough 438
— Hydrochlorate 14
Appendicitis 125
— and Intestinal Catarrh 417
— Leucocytosis in 151
— Treatment of 513
Appendix, Surgery of 86
Apples and Gout 355
Argyll-Robertson Pupil 411
Arrhenal in Malaria 461
Arrhythmia 367
Arrowroot in Typhoid 664
Arseniate of Quinine in Malaria ... 460
Arsenic in Acne 106
— and Beri-beri 141
— in Chorea 192
— — Diabetes 220
— — Dysmenorrhœa 467
— and Erythema 301
— causing Herpes 384
— in Multiple Sclerosis 604
— — Pernicious Anæmia 114
— — Psoriasis 567
— — Stockings, Rash from 243
Arsenical Properties Weak in the Cacodylates 4
Arsenious Acid in Cancer 19
— — — Rodent Ulcer 596
Arterial Retinal Walls, Disease of ... 579
Arteries, Suture of 82, 127

PAGE

Arterio-Sclerosis 128
— — Iodides in 373
— — New Sign of 129
— — Types of 129
Arterio-Sclerotic Changes in Cerebral Syphilis 630
Arthritis and Bronchiectasis 135
— Deformans 76 129
— of Hip Joint 394, 398
— In ective 132
— Nervous Origin of 131
— and Phthisis 75
— Review 75
— and Rheumatism 132
— Syphilitic 135
Arthropathy, with Psoriasis 567
Asaprol for Hyperchlorhydria 256
Ascarides, Toxic, Poison from 692
Ascites, in Banti's Disease 137
— — Cirrhosis 195
— Operative Treatment for 89
Asphyxia, see Stertor ... ...
Aspirin 15
— in Diabetes 220
— — Rheumatism 586, 587
Asterol as a Bactericide 15
Asthenic Paralysis 505
Asthma, Dionin in 28
— Diphtheritic Antitoxin in 14
— and Nasal Disease 78
Asymmetry in Insanity 409
Atony of the Stomach 258
Atropine in Alcoholism 229
— — Hypopyon 207, 208
— — Ileus 48
— — Intestinal Obstruction 420
— — Nasal Hydrorrhœa 489
— — Peritonitis 512
Attitude of Patient, important in Stertor 623
Aural Surgery, Review 93
Auto-Intoxication from Digestive Tract 254

BACILLUS of Yellow Fever ... 696
Bactericides, Asperol 15
Bacteriology of Rheumatism 580
Bael in Colitis 206
Bandaging Legs in Cardiac cases ... 372
Banti's Disease 136
Barium Sulphide in Ringworm ... 594
Basal Drainage in intra-cranial pressure 159
Basedow's Disease 335
Bath Treatment in Typhoid ... 1, 68, 666
Baths in Dementia Præcox 214
— — Eclampsia 570
— — Psoriasis 568
— — Purpura 574
— ready made for Typhoid 667
— and Spas in Chronic Rheumatism 74, 589
Bee Juice in Peritonitis 512
— Tea in Typhoid 664
Belladonna in cough 439
— — Enterospasm 297
— — Epilepsy 298
— — Laryngitis 431
Benzoate of Mercury in General Paralysis 509

PAGE

Benzoin Tincture in Pruritus Ani ... 564
Benzo-Naphthol in Dysentery ... 250
— — Senile Pruritus 564
Beri-beri 139
Bicycle in Cardiac Disease 374
Bile Acids, Tests for 680
Bilious Typhoid in Egypt 279
Bismuth in Dysentery 246, 247, 248, 250, 282
— — Gonorrhœa 346
— — Infantile Diarrhœa 226
— — Intestinal Catarrh 416, 418
— Salicylate for Diabetic Dyspepsia ... 220
— — — Hyperchlorhydria 256
— Subgallate in Morphinomania .. 469
Blackwash Ointment in Pruritus Ani ... 565
Blackwater Fever 142
— — Native Remedy for 144
Bladder, Extroversion of .. 92, 145
— Radiography of 626
— Troubles in Women 147
Blanching of Hair in Insanity 410
Blaschko's Ointment for Psoriasis . 568
Blastomycetes in Cancer 166
Blasto-mycosis, a Fungus 73
Bleeding, Quinine Applications in ... 45
Blindness, from Salicylate of Soda ... 112
— Sudden, caused by Alcohol 111
Blisters in Acute Rheumatic Endocarditis 371
— — Rheumatism of Joints 585
Blood, and its Diseases 68
— Agglutination in Malaria 456
— Biological test for 154
— Changes in Chloroma 187
— Clinical Examination of the .. 150
— Freezing Point of, Cryoscopy ... 210
— the, as affected by Plague 535
— — in Alcoholic Intoxication .. 154
— — Banti's Disease 137
— — Diagnosing Pneumonia 541
— — Diagnosis of Yellow Fever ... 697
— — Pernicious Anæmia 114
— — Tuberculosis 519
— Transfusing in Tuberculosis .. 410
Blood-changes caused by Ether ... 28
Blood-letting in Cardiac Failure ... 359
— — — Gout 356
— — — Uræmic Coma 474
Blood-pressure in Insanity 411
— — Saltpetre for Reducing 373
Blood-serum (epileptic) in Epilepsy ... 297
Blue Light in Phthisis 69
Blue Ointment for Erysipelas 300
— — Inhalation in Syphilis 632
Blue Urine, Case of 676
Boil, Oriental 331
Boracic Acid in Follicular Tonsillitis ... 655
— — — Leprosy 434
— — Enemata in Dysentery 247
— — Gargle in Tonsillitis 655
Borate Lotion for Acne 104
— of Soda for Chilblains 187
Borax as a Food Preservative 16
Borochloretone 21
Bovril in Typhoid 664
Bradycardia 366
Brain and Spinal Surgery, Review .. 89
— Abscess 90, 155
— Injuries to 156

PAGE

Brain, Tumours of 90, 159
— Weakness and Insanity 408
Brand's Essence in Typhoid 664
Breast, Cancer of 81, 175
— — — Early Diagnosis 175
— — — Statistics of Operation .. 175
Bright's Disease, Operation in ... 86, 475, 479
Bromides, in Cerebro-spinal Meningitis 186
— — Dementia Præcox 214
— — Diabetic Neuroses 220
— — Enterospasm 297
— — Epilepsy 298
— — Mania 72, 462
— — Rheumatism 535, 587
— — Spastic Constipation 419
— of Potassium in Eclampsia 569
— — — — Laryngitis 431
— — — for the Insomnia of Pneumonia 544
— — — in Pruritus 564
Bromoline and Digestion 260
Bronchiectasis and Arthritis 135
Bronchial Casts 163
— Croup 163
Bronchitis 70, 162
— Dionin in 28
— Fibrinous or Plastic 163
— Intra-tracheal Injections in 35
Bubo 104
— Chloretone in 21
Bullet Wounds affecting Vision ... 302
Burns, Dymal for 28

CANTLIE, Jas., 71, 139, 142, 189, 224, 324, 432, 451, 533, 657, 695; Carter, A. H., 69, 128, 358; Chapin, H. D., 401.

Cacodylate of Sodium in Purpura ... 574
Cacodylates, Caution respecting .. 3
Cactus 16
Cæsarean Hysterectomy for Myomata 317
Calcium Chloride in Purpura ... 574, 575
— Hydrosulphide as a Depilatory ... 242
— Sulphide in Ringworm 595
Calculi, Radiography of 86, 625
Calculus, Oxalic 165
— of Pancreas 504
— Vesical, in Egypt 287
Calomel in Blackwater Fever 144
— — Cerebro-Spinal Meningitis ... 186
— — Cirrhosis 195
— — Eclampsia 569
— — Gonorrhœal Arthritis 133
— — Infantile Diarrhœa 225
— — Malarial Hæmaturia 460
— — Melancholia 464
— — Neurasthenia 484
— — Pneumonia 542
— Injections in Lupus 660
— Ointment in Pruritus Ani 565
— and Soda in Tonsillitis 655
Camphor, Delirium following 17
— in Epilepsy 298
— — Typhoid 666
Camphor - Menthol Injections for Bronchitis 35
Camphorated Naphthol Injection for Adenitis 107
— Thymol for Adenitis 108

	PAGE
Cancer	67, 165
— of Breast	81
— in Egypt	287
— Following Lupus Erythematosus ...	450
— of Pancreas	564
— Parasitic Theory of	166
— Simulated	172
— of Stomach	88
— — Tongue	178
— Treatment by Caustics	18
— of Uterus	681
Cannabis Indica in Dysmenorrhœa ...	467
— — — Pruritus...	564
Cauterization in Gonorrhœa	349
Cauterizing Uterus for Inoperable Cancer	685
Cautery in Hypopyon	208
Carbolic Acid in Acne	106
— — Dressings, Caution	3
— — in Dysentery	248
— — Externally for Erysipelas ...	300
— — — in Pruritus	564
— — Injections for Buboes	165
— — for Sciatica...	602
— — Subcutaneously in Pruritus ...	566
— — for Uterine Fibromyomata ...	312
— — Poisoning, Alcohol in	12
— — with X Ray Treatment	695
Carbonate of Creosote	17
— — — in Pneumonia	545
Carbonic Acid Gas for Dysentery ...	417
Carcinoma of Colon	96
— and Malaria	455
— Mistaken for Enlarged Prostate ...	557
— of Rectum	577
— Treated by Caustics	18
— of Uterus, Hydrogen Peroxide for..	684
— — — Palliative Treatment... ...	684
— and X Rays	57
Cardiac Cirrhosis	193
— Failure	358
— — in Pneumonia	544
— Neuroses	366
— Stimulants in Blackwater Fever ...	144
— Stimulant, Cactus a	16
— Troubles, Evolution of	69
Carlsbad Water in Diabetes	220
Cassia Beareana for Blackwater Fever.	144
— Occidentalis in ditto	145
Castor Oil in Chronic Diarrhœa ..	416
— — — Dysentery	246, 247
— — — Infantile Diarrhœa	225
— — — Intestinal Dyspepsia	419
— — — Seborrhœa	606
Casts o the Bronchial Tubes	163
Cataract	179
— Depression in	94
— Secondary	182
Catarrh, Intestinal	415
— — and Appendicitis	417
Caustic Potash in Cancer	20
— — — Eczema	275
Caustics in Treatment of Carcinoma ...	18
Cautery, Actual, in Pruritus Ani ...	565
Celandine in Cancer	170
Cerebellar Tumours	159
Cerebral Syphilis	80, 629
Cerebrin in Epilepsy	297
Cerebro-Spinal Fluid in Epilepsy ..	297
Cerebro-Spinal Fluid in Meningitis ...	186
— — Meningitis, Epidemic	184
Cereo as a Diatase	407
Cerium Oxalate for Vomiting in Cancer	173
Cervical Ganglion, Excision for Glaucoma...	94, 334
— Sympathetic, Resection in Basedow's Disease	335
Cervix Laceration, and Abortion ...	98
Chalk in Diarrhœa	418
Chancroids, Chloretone in	21
Change of Asylum in Insanity... ...	414
Charcot's Disease in Hip	359
Chaulmoogra Oil in Leprosy 231, 434,	430
Chest Surgery, Review	91
Chicken - Pox Differentiated from Small-Pox	611
— — in Egypt	278
Chilblains	187
— and Lupus Erythematosus	449
Children, Hernia in	381
— Surgical Diseases of, Review ...	92
China, Cholera in...	190
Chinotropin in Gout	355
Chloasma	301
Chloral	20
— in Dementia Præcox	214
— — Eclampsia	569
— — Insanity	413
— — Muscular Gout	356
Chloretone	21
Chloride of Zinc in Cancer	20
— — — — Rhinitis Vasomotoria ...	593
Chlorine Water for Puerperal Fever ...	572
Chlorodyne in Dysentery	248
Chloroform Anæsthesia in Cardiac Cases	374
— Causes of Death Under	116
— and Ether, Compared	116
— Supposed Impurities in	21
Chloroma	187
Chlorosis in Egypt	286
Cholera	71, 189
— in Egypt	280
Chorea	191
— Hyoscine for	34
Choroid, Tubercolosis of	192
— Condition of in Myopia	472
Chronic Rheumatism	74
Chrysarobin for Freckles	331
— in Psoriasis	568
— — Ringworm	594
Circulation, Effects of Alcohol on ...	230
Circumcision in Acne	106
Cirrhosis of Liver	193
— and Banti's Disease	138
— Surgical Treatment of	106
Citrate of Potassium in Melancholia ...	464
— — Soda in Rheumatism	586
Citrine Ointment after Cautery in Pruritus Ani	565
Citronella Oil to Deter Mosqnitoes	22, 698
Classification of Causes of Death ...	707
Clayton Method of Ship Disinfection for Plague	537
Climacteric Hœmorrhages	467
Climate, in Phthisis and Nervous Diseases	22
Climatic Buboes	537

PAGE

Chinosol in General Paralysis 510
— a Mouth Wash before Operations ... 656
Clitoridectomy for Incontinence of Urine 149
Clover's Gas-Ether Anæsthesia ... 117
Cocaine Anæsthesia in Spinal Surgery. 617
— Hydrochlorate, as a Local Anæsthetic 654
— Intoxication 204
— Injections in Muscular Gout ... 356
— and Local Anæsthesia 119
— — Morphine 24
— in Opium Poisoning 5
— Subcutaneously in Pruritus... ... 566
— for Vomiting in Cancer 173
Cocainization of Spine 91, 617
Coccygodynia 205
Coccyx, Excision of, for Coccygodynia 206
Cocoa in Typhoid... 664
Codeine in Diabetes 220
— for Insomnia and Cough of Pneumonia 544
— in Laryngitis 431
— — Melancholia 72, 464
Cœliotomy for Peritoneal Tuberculosis 514
Colchicum and Gout 77, 356
Cold Air in Typhoid 668
— Applications in Rheumatism ... 585
Coley's Fluid in Cancer... 170
Colitis, Chronic 97, 415
— Membranous 206
Collapse of Ala Nasi 489
Collargol in Malignant Endocarditis ... 365
Collateral Circulation in Cirrhosis ... 197
Colon, Carcinoma of 96
— Irrigation of in Infant's Diarrhœa... 226
Colotomy in Chronic Colitis 97
— in Membranous Colitis 206
Colours and Mosquitoes... 458
Compression by Injection for Phthisis 70, 523
Concussion of Brain 157
Congenital Dislocation of Hip... ... 384
Conjunctiva, Catarrh of, and Cuprol ... 26
Conjunctivitis, Phlyctenulosa, Cuprol for 27
Constipation, Spastic 419
— in Typhoid 669
Constitutional Condition in Myopia ... 472
Continued Fever in Egypt 277
Contusions of Abdomen 96
— — Hip Joint 393
Copaiba in Cirrhosis 195
— — Gonorrhœa 336
— Rash, similar to Small-Pox... ... 609
Copper Sulphate Enemata in Dysentery 247, 282
— — Injections in Gonorrhœa ... 346
Cord Degeneration and Pernicious Anæmia 115
Cornea, Affections of 207
Corn Flour in Typhoid 664
Coryza 209
Coto Bark in Morphinomania 469
Couch for X Ray Work... 53
Cough 438
— Heroin for 34
Counter-Irritant Effect of Chloral ... 20
Coxa Vara 396

PAGE

Coxitis, Tuberculous 396
Cranial Injuries 89
Craniectomy for Hydrocephalus ... 400
Crede's Silver in Gonorrhœa 348
Creolin Enemata in Dysentery.. ... 247
Creosotal 17
— in Pneumonia 545
Creosote and Quinine in Malaria .. 460
— Injections for Bronchitis 35
— in Phthisis 521
— — Pneumonia 542
Crescents, Malarial 453
Croup, Bronchial 103
Croupous Pneumonia, Diphtheritic Antitoxin in 14
Cryoscopy 68, 210
Culices and Filariasis 324
Cupping in Blackwater Fever 144
Cupric Electrolysis in Ozœna 502
Cuprol 26
Curettage in Puerperal Fever 572
— of Uterus for Fibromyomata ... 312
Cuttle-Fish Bone in Chronic Diarrhœa 416
Cyanide of Mercury in Hypopyon ... 208
Cyanosis of Pneumonia 545
Cyclical Albuminuria 675
Cystitis with Arthritis 181
— Complicating Typhoid 673
Cystogen in Gonorrhœa 348
Cysts, Hydatid, in Lung 443
— — — Liver 437

DEAFNESS, Chronic 94
— and Nasal Operation 93
Decapsulation of Kidney in Bright's Disease 479
Decortication of Lung 289, 291
Delirium, from Digitalis 27
— Dormiol in 28
— following Use of Camphor 17
Delusions in Insanity 412
Dementia Præcox... 212
Dengue Fever in Egypt 278
Dental Caries and Alopecia 111
— Surgery 95
Depilatory for Operations 242
Depression in Cataract 94, 181
Dermatitis Exfoliativa Seborrhoica ... 606
Dermatology, Review 73
Desquamation in Scarlet Fever, Infectivity of 600
Destructors, Improvements in 711
Deviations of Septum Nasi, Operation for 486
Diabetes 214
— in Egypt 286
— Eucalyptus in 32
— and Fibromyoma of Uterus... ... 308
— Insipidus and Mellitus 217
— Surgical Aspects of 221
Diabetic Ulceration of Larynx... ... 432
Diaphragm, Wounds of 82, 224
Diarrhœa, Infantile 225, 407
— Summer... 407
Dictionary of Treatment... 67
Diet in Scleroderma 602
— in Typhoid 662
Dietetics 226

	PAGE
Digestion, Effect of Alcohol on ...	2 0
Digestive Tract, in the Infant	402
Digitalis	27
— for Cardiac Failure in Pneumonia...	544
— in Diabetic Coma	2 9
— — Dilatation of Heart ...	361
— — Morphinomania	469
Dilatation of Canal in Dysmenorhœa...	467
— of the Heart	360
— — Œsophagus...	492
— — Stomach	257
Diluents for Milk	406
Dionin	28
— in Cough	439
— — Inflammation of Eyes	303
Diphtheria	234
— in Egypt	281
— Feeding in	235
Diphtheritic Antitoxin	13, 231
Diplococcus of Rheumatism	580
Disinfectant, Quinine as a	45
Disinfectants, Experiments with ...	706
Disinfection in Surgery	240
Dislocations of Hip	393
— — — Congenital	92, 393
— Paralytic	399
Displacement a Cause of Intestinal Catarrh	418
Displacements of Uterus...	686
Distoma Hæmatobium in Egypt ...	284
— Heterophyes in Egypt	286
Diuretics, Alkaline in Rheumatism ...	585
— in Blackwater Fever	144
Diverticulæ of Urethra and Gonorrhœa	339
Dormiol	28
Douche Massage in Chronic Rheumatism	589
Douching in Puerperal Fever	572
Dover's Powder in Dysentery	250
Dracunculus Medinensis in Egypt ...	286
Drinking at Meals	254
Drug Rashes 3,	243
Dry Sponging for Operations	242
Duodenum, Ulceration and Perforation of	87
Dust and Smoke, Prevention	711
— and Typhoid Fever	703
Dymal (Didyme Salicylate)	28
Dysentery	244, 248
— and Abscess	104
— Carbonic Acid Gas for	417
— in Egypt	282
— Ipecacuanha in	36
— Permanganate of Potash in	40
Dysmenorrhœa	465
Dyspepsia	251
— Intestinal	415

EAR, Diseases of	263
— Local Anæsthesia in	274
Eclampsia, Puerperal ...	85, 568
— Effect of Delivery upon	569
Echinococcus in Egypt	286
Eczema	274
— and Small-pox differentiated, ...	611
— Vesicular, Dymal for	28
Edebohl's Operation in Bright's Disease	476
Egg Albumen in Peritonitis	512
Eggs in Typhoid	664
Egypt, Diseases of	276
— and Arthritis deformans	76
— Cholera in	189
— Plague in	533
Einhorn's Method of Diagnosing Œsophageal Dilatation	493
Electric Poultice in Pneumonia ...	543
Electricity in Gonorrheal Arthritis ...	134
— — Insanity	414
— — Neurasthenia	485
— — Pruritus Vulvæ	565
— — Rheumatism	592
— — Treatment of Lupus	659
— — Trigeminal Neuralgia ...	70, 481
— for Uterine Fibromyomata	312
Electro-Therapeutics	62
— — in Intestinal Catarrh	418
Electrolysis in Acne	106
— — Eustachian Tube	270
— and X Rays in Combination ...	695
Elephantiasis in Egypt	283
— and Filariasis	328
Embolism in Chorea	191
— — Fundus Oculi	94
Empyema, Dionin in	28
— Surgical Treatment 91, 288,	290
Emphysematous Gangrene	332
Encephalitis	292
Endocarditis, Malignant	364
— — and Pulmonary Tuberculosis ...	368
Enemata of Oil in Constipation ..	420
— in Dysentery	247, 250
— for Typhoid	670
— — Yellow Fever	698
Engine-drivers and Diabetes	214
Enlarged Prostate, Radical Cure ...	552
Enteric Fever, see Typhoid	
— — in Egypt	276
Enteritis, Catarrhal	415
Enteroptosis	294
Enterospasm	296
Enuresis	148
Eosinophilia in Disease	153
Epiglottis, Removal of	430
Epilepsy	297
— Blood-serum in	70
— in Egypt	287
— Solanum Carolinense in	47
— Surgical Treatment of	298
Epistaxis	300
Epithelial Tumour of Jaws, Eve's ...	635
Epithelioma and X Rays 57: Caused by	60
Epithelioma Papillomatous, Zinc Chloride in	20
Ergotin in Multiple Sclerosis	604
— — Puerperal Fever	572
— — Purpura	574
— — Uterine Fibromyomata	311
Erosion of Teeth	95, 632
Erysipelas	300
— Curing Ozœna	503
Erythema Induratum Scrofulosorum ...	660
— Multiforme Distinguished from Small-pox	609
— Nodosum	301
Erythrocytes, Granular Degeneration o	153

PAGE

Eserine after Cataract Operation ... 122
Ether, Blood changes caused by ... 28
— and Chloroform 110
— in Chronic Uræmia 474
— — Laryngitis 431
— Narcosis, Menthol in 38
— — and Pine Oil 439
— Saturation with 31
Ethyl Bromide as a Nasal Anæsthetic 110
— Chloride as an Anæsthetic ... 32, 118
Eucaine for Local Anæsthesia ... 119, 654
Eucalyptus in Diabetes 32, 219
Enquinine for Blackwater Fever ... 144
— in Malaria 458, 459
— Substitute for Quinine 33
Eustachian Tube, Obstruction of ... 270
Eve's Multilocular Epithelial Tumour of the Jaws... 635
Excision of Lupus... 659
— in Rodent Ulcer 595
— of Thrombosed Vein 654
Exercise in Colitis 206
— Daily in Treatment of Pruritus ... 566
— — Dementia Præcox... 214
— — Valvular Cardiac Disease ... 369
Exfoliative Dermatitis 606
Extirpation of Tubercular Glands ... 108
Extraction Preferred to Discission in High Myopia 473
— of Teeth, Pain after 634
Extra-Uterine Pregnancy 547
— — and Intra-Uterine 551
Extroversion of Bladder, Operation for 145
Eye, Diseases of 94
— Injuries of 301
— Symptoms in Insanity 411
— Therapeutics of 304

FENWICK, E. H. ... 86, 475, 552, 625
Facial Paralysis 505
Failure, Cardiac 358
Fat, Use of in Psoriasis 568
Fatty Heart 365
Favus in Egypt 286
— X Rays in 695
Femur, Fractures of 391
Fever of Phthisis 522
— in Pneumonia 543
Fevers, Infectious, Review 68
Fibrinous Bronchitis 163
Fibroma of Ovary... 498
Fibromyoma of Uterus 83, 305
— — — and Heart 308
— — — complicating Pregnancy ... 319
— — — Operation for 312
— — — Treatment 311
— Diagnosis of 310
Fiji, Filariasis in 327
Filaria in Egypt 286
— and Filariasis 324
— Forms of 325
Fillings, Temporary, for Teeth ... 638
Finger's Ointment in Gonorrhea ... 346
Finger and Toe Nails, and Insanity ... 409
Finger-prints and Mental Deficiency ... 49
Finsen's Light Treatment 54
— — in Rodent Ulcer 596

PAGE

Finsen's Light in Skin Disease ... 594
Fish and Leprosy 433
Fistula Vesico-Vaginal 149
Fœtus in Cancer, Application for ... 173
Fœtus, Condition of the Blood in ... 151
Folie Circulaire 512
Follicular Tonsilitis 655
Food, Alcohol as a 10
— in Colitis 206
— — for Neurasthenics... 484
Food Preservative, Borax as a 16
Formalin in Acne 106
— — Climacteric Hæmorrhages ... 467
— — Lupus 660
— — Ozæna 502
— — Phthisis 521
— — Rodent Ulcer 596
— for Puerperal Fever 572
— in Uterine Cancer 685
Fracture 329
— of Hip Joint 390
— — Semi-lunar Cartilages 330
— — Skull 156
Freckles 331
Freezing a Stomach Tube 261
Fried Fish and Typhoid Fever ... 661
Furunculus 331

GILES, A. E., *pp.* 82, 98, 147, 305, 319, 425, 465, 497, 547, 565, 568, 571, 681, 686; Goodall, E. W., 68, 184, 234, 422, 463, 597, 600, 608, 610.
Gaiffe's Static Machine for X-rays ... 49
Galvanisation for Nervous Symptoms in Rheumatism 586
Ganglion Cells affected by Alcohol ... 228
Gangrene, Emphysematous 332
— of Lungs 442
— — Tonsils 656
Gangrenous Wounds from Carbolic Dressings 3
Gas-ether Anæsthesia 117
Gasoline in Acne 106
Gasserian Ganglion, Operation for Neuralgia 482
Gastrectomy for Carcinoma 625
Gastric Carcinoma 624
— Hæmorrhage 87, 262
— Perforation 87
— Tetany 261
— Tumours 261
— Ulcer and Perforation ... 87, 262
Gastrorrhagia 87
Gastrorrhaphy 625
Gastrosia Fungosa 255
Gastrostomy in Œsophageal Stricture 495
Gelatin for Hæmoptysis 522
— (ingested) as a Styptic 34
— Injections for Hæmorrhage ... 357
Gelatinised Serum in Hæmorrhagic Pleurisy 540
— — for Purpura 574
Gelsemium in Pruritus 564
General Medicine, Review of 67
General Paralysis... 506
— — and Toxæmia 408
— Surgery, Review 81

PAGE

German Measles 597
Germiletum in Eczema 276
Glanders and Smallpox differentiated 612
Glaucoma 94, 333
— after Cataract Operations 182
Glioma, removal of 160
Glottic Spasm 334
Gluconic Acid in Diabetic Coma ... 218
Glutol in Smallpox 613
Glycerine and Tar in Psoriaris ... 568
Glycosuria, Eucalyptus in 33
— and Melancholia 464
— Surgical Aspects of 221
Goitre in Egypt 287
—, Exophthalmic 334
Gold Cure of Alcoholism 229
Gonococcus, Culture of 338
Gonorrhœa 79, 336
—, Bacteriology of 79
Gonorrhœal Arthritis 132
— Infection, general 336, 345; direct 337
Goose Grease in Ringworm 595
Gout 76, 351
— in Egypt 281
— Muscular 356
Graves's Disease 70, 335
— — and the Heart 367
Green Pigment in Chloroma 187
Gruel as a Diluent for Milk 406
— Predigested, in Infantile Diarrhœa 225
Guaiacol in Arthritis Deformans ... 131
— Injections for Bronchitis 35
— in Tuberculous Laryngitis 431
Guaiacum in Gout 356
Gummata of Spine 622
Gurgun Oil in Leprosy 435
Guttapercha Filling for Teeth 642
Gynæcology, Review 82

HAMMOND, G. M., *pp.* 110, 115, 191, 292, 297, 334, 358, 437, 468, 473, 481, 484, 505, 576, 601, 603; Hare, H. A., 1, 8; Holthouse, E. H., 94, 111, 179, 192, 207, 301, 304, 333, 471, 578; Hutchison, R., 67, 113, 116, 136, 165, 187, 193, 204, 206, 210, 225, 226, 248, 294, 296, 420, 436, 469, 512, 547, 597, 623, 691.

Haab's Magnet for Eye Operations 94, 302
Hæmamœbæ 453
Hæmatemesis 262
— and Cirrhosis 195
Hæmatology 150
Hæmato-porphyrinuria after Chloroform 676
— — from abuse of Sulphonal ... 676
Hæmaturia, caused by Urotropin 48, 678
— Malarial 460
Hæmoglobin, measurement of 151
— and question of Operation 29
Hæmoptysis 522
Hæmorrhage at Climacteric ... 467, 468
— from Ear after Myringotomy ... 273
— Gelatin Injections for 357
— Intestinal, Adrenalin harmful in ... 7
— into the Optic Nerve Sheath ... 578
— after Prostatic Operations 562

PAGE

Hæmorrhage of Stomach 262
— Stypticin in 48
— in Typhoid 68, 670
Hæmorrhagic Encephalitis 292
— Pleurisy 540
— Septicæmias in relation to Plague... 534
Hæmorrhoids, Electricity in 85
— in Egypt 287
— Internal 577
Hæmothorax 446
Hair, Blanching in Insanity 410
— Facial, in Insane Women 412
Hair-dye, Rash from 243
Hallucinations in Insanity 412
Hands, Sterilizing ... 240, 241, 242
Hayem's Fluid in Syphilis 630
Headache 358
— in Cerebral Syphilis 630
Heart, Diseases of 69, 358
— Stimulant, Cactus a 17
— Surgery of 375
— Therapeutics of 371
— and Uterine Fibromyomata... ... 308
— Wounds of 82, 91
Heat, effect of in Rheumatism 590
— (radiant) Baths in Arthritis ... 131
Hepatitis, Chronic Interstitial 194
Hepatopexy 89
Heredity in Myopia 472
Hernia 380
— in Children 92, 381
Heroin 34
— in Cough 438
— for Cough in Pneumonia 544
— and Terpin-hydrate in Bronchitis ... 70
Herpes Zoster 383
— and Small-pox differentiated ... 611
Hetol 34
High Myopia, Operation for 472
High-frequency Currents 55
Hip, Congenital Dislocation of 92, 384
Hip-joint Affections, Diagnosis of ... 389
Hong Kong, Plague in... 533
Horse-serum Injections in Inebriety ... 70
— — in Diphtheria 237
Hospital Treatment for Insanity 72, 412
— Work with X-rays 54
Hot-air Baths in Arthritis ... 132, 133
— in Chronic Rheumatism 589
— in General Gonorrhœal Infection ... 345
— in Lupus 660
Hot and Cold Clysters for Chronic Enteritis 417
Hot-water Applications in Cardiac Failure 359
Hydatid Cysts in Liver 437
Hydrarg. Ammoniat. Ointment in Seborrhœa 606
Hydrarthrosis, Spyhilitic 135
Hydrastis, Prophylactic of Abortion ... 101
— in Uterine Fibromyomata 311
Hydroa Gestationis 399
Hydrocephalus 400
Hydrocele 400
— in Egypt 287
Hydrochloric Acid in Insanity... ... 414
Hydrogen Peroxide in Acne 106
— — in Carcinoma of Uterus 684
— — for Chilblains 187

PAGE

Hydrogen Peroxide for Freckles ... 331
Hydrophobia in Egypt 280
Hydrorrhœa, Nasal 489
Hydro-therapy in Insanity 474
Hygienic Measures for Neurasthenia 484
Hyoscine for Chorea 34; by injection 192
— Injections in the Narcotic Habit ... 5
— in Insanity 413
— in Mania 72, 462
— in the Morphine Habit ... 70, 468
Hyper-acidity of Stomach 254
Hyperæmia in Chronic Rheumatism ... 591
Hyperchlorhydria 256
Hypertrichosis, X-rays treatment of ... 695
Hypertrophy of Heart 360
Hypodermoclysis, Quinine by, in Malaria 459
Hypoleucocytosis, in Diseases 153
Hypopyon Ulcer 94, 207
Hypostatic Albuminuria 675
Hysterectomy for Myomata 316
— in Puerperal Fever 573
Hysteria in Egypt 287
Hysterical Affections of Hip 398

ICE, in Cerebro-spinal Meningitis ... 186
— in Folicular Tonsilitis 655
— in Tympanitis of Typhoid 673
Ice-bag in Typhoid, when not to be used 670
— — in Puerperal Fever 572
Ice-creams and Poisoning by 705
Ichthalbin in Diarrhœa 418
Ichthargan in Gonorrhœa 346
Ichthyol for Acne 105
— for Erysipelas 300
— in Leprosy 435
Ichthyosis Palmaris and Leprosy ... 434
Ileus, Strychine and Atropine in ... 48
Immature Cataract 180
Immunity, Study of 67
Immunization from Yellow Fever ... 698
Impetigo Contagiosa 401
— and Smallpox Differentiated ... 611
Incontinence of Urine 148
Indican, increased in Dementia ... 411
Indigestion 251
— Intestinal 415
Infant Feeding 401
Infants, Acute Arthritis of 395
Infantile Diarrhœa 225
Infection, Alcohol and 231
— of Ships with Yellow Fever 696
Infectious Fevers, Review 68
Influenza in Egypt 278
— and Smallpox 609
Inguinal Hernia in Children 381
Inhalations, Continuous, in Phthisis ... 522
Injections of Quinine in Malaria 43, 459
— Intra-Tracheal, for Bronchitis ... 35
— Intra-Uterine, for Puerperal Fever ... 572
— of Oil 496
— for Tubercular Adenitis 107
Innominate Aneurysm 121
Inoculation in Malaria 459
— — Plague 536
— against Typhoid 662
Inoperable Cancer, Treatment of ... 170

PAGE

Insanity 72, 407
— Hospital Treatment of 412
— Methylene Blue a Sedative in ... 40
— Puerperal 573
Insects and Tropical Diseases 71
Insomnia in Cerebral Syphilis 630
— in Pneumonia 544
Instruments, Sterilizing 241
— for Filling Teeth 639
Intention Spasm 474
Intermittent Fevers, Nomenclature ... 453
Interrupters for X-Ray Work 51
Intestinal Antiseptic, Aspirin as an ... 15
— Hæmorrhage, Suprarenal Gland Harmful in 7
— Indigestion 415, 418
— Injury (bullets, etc.) 95
— Lithiasis 436
— Obstruction, Atropine in 420
— Suture 95
Intoxication by Cocaine 204
Intra-Tracheal Injections for Bronchitis 35
Intubation in Diphtheria ... 68, 237
— in Laryngitis 431
Intussusception 96
Inversion of the Uterus 688
Iodide of Potassium in Aneurysm ... 121
— — — in Cardiac Hypertrophy ... 370
— — — a Cause of Purpura 575
— — — in Cerebro-Spinal Meningitis 386
— — — in Encephalitis 294
— — — in Headache 358
— — — in Multiple Sclerosis ... 604
— — — in Polyarthritis 547
— — — in Psoriasis 567
— of Sodium in High Blood Pressure 371
Iodides in Arterio-Sclerosis 129
— in Arthritis 131
— and Cardio-Vascular System ... 373
— when Proplylactic of Abortion ... 100
Iodine for Adenoids 110
— in Arterio-Sclerosis 373
— Ointment for Buboes 164
— in Ringworm 594
— Tincture in Follicular Tonsillitis ... 655
— — for Uterine Fibromyomata ... 312
Iodipin in Actinomycosis 107
— in Syphilis 631
Iodoform Emulsion in Tuberculosis of Spine 621
— in Ether for Adenitis 107
— Injections for Bronchitis 35
Iodoline (as an Iodide) 36
Ipecacuanha in Dysentery ...36, 247, 249
— in Pneumonia 546
Iridectomy for Glaucoma 333
Iritis, Malarial 455
Iron in Colitis 206
— — Dysmenorrhœa 467
— — Purpura 574
— and Quinine in Gangrene of Tonsils 656
Irrigation of Colon in Infantile Diarrhœa 226
— in Puerperal Fever 572
Irritable Bladder in Women 147
Izal in Dysentery 248
— in Phthisis 520

PAGE

JONES, R., *p.* 389.
Jaborandi Extract in Pruritus ... 564
Jambul Extract in Diabetes 220
Jaundice, Epidemic 422
Joints, Injuries to... 423
— Wounds of 425
Jugular Vein, Ligature of 267
Justus on Mercury and Syphilis ... 39

KELYNACK, T. N., *pp.* 150, 523.
Kefir.. 233
Keloid 425
Keratitis, Neuro-Paralytic ... 209
Keratodermia, Confused with Leprosy 434
Kidney Disease in Egypt 287
— Movable, and Dyspepsia 256
— Radiography of 625
Knee-Joint, Amputation at 112
Koch, Prof., Views on Bovine Tuberculosis 517, 704

LEECH, P., *pp.* 81, 112, 119, 127, 175, 178, 205. 221, 224 240, 290, 329. 330, 332, 357, 400, 423, 425. 417. 480, 492. 196, 607, 646, 654, 683; Loomis, H. P., 162, 438, 517, 531, 538, 541; Love, J. K., 93, 263.
Laboratories, Public, for Examination of Sputum 520
Labour, Management of... 425
Labyrinth, Concussion of 272
— Suppuration of... 271
Lactalbumin, Deficient in Cows' Milk 406
Lacunar Keratosis 655
Laminectomy after Spinal Fracture ... 616
Lamps for Light Treatment 54
Laparotomy in the Perforation of Typhoid 671
— in Typhoid 68
Laryngitis 431
Larynx, Affection of 430
Lateral Sinus, Thrombosis of 268
Laudanum in Dysentery 247, 249
Lavage in Dyspepsia .. 253, 256, 261
— in Stomach Dilatation 258
— of Stomach and Colon, Apparatus for 416
Lead, as a Cause of Abortion 98
— Injection for Gonorrhœa 336
Lecithin, Importance in Infant Diet ... 403
Legs, Bandaging, in Cardiac Cases ... 372
Lenigallol in Eczema 275
Leprosy 432
— Contagious 433
— in Egypt 280
— Injections in 435, 436
— and Keratodermia 434
Leucocyte Count, Uses of 151
Leucocytosis and Tropical Abscess 104. 437
— in Diagnosis 68, 151
Leucopenia... 153
Lichen, Confused with Seborrhœa ... 605
— Simulating Smallpox... 609
Life Assurance and Syphilis ... 81, 629
Ligature of Art ries 123
— of Jugular Vein 267

PAGE
Ligature of Uterine Arteries for Cancer 685
Light Baths in Rheumatism 592
— Treatment 54
— — in Rodent Ulcer 596
Linseed Poultices in Pneumonia ... 543
Liquid Air in Lupus 660
Liquor Pancreaticus in Typhoid ... 664
— Trinitratis in Scleroderma 602
Lime-Water in Yellow Fever 698
Lithiasis. Intestinal 436
Liver, Abscess and Dysentery ... 245, 249
— Cirrhosis of 193
— — in Egypt 282
— and Gout 353
— Prolapsed 89
— Regenerative Power of 194
— Surgery of 437
Local Anæsthesia for Tonsil Affections 654
Locomotor Ataxia 437
Lumbago, Confused with Smallpox ... 610
Lumbar Hernia 380
— Puncture 91
— — in Chorea 191
— — in Diagnosing Skull Fracture .. 619
Lung Cavities, Excision of 448
— Diseases 69, 438
— Gangrene and Abscess in 442
— Surgery of the... ... 82, 91, 445, 447
Lupus 659
— Erythematosus 449
— in Egypt 282
— and Photo-Therapy 42
— and X-Rays 56
Lymphangiectasis, Filarial 328
Lymphatic Glands in Bronchitis ... 162
Lymphoid Deposits in Chloroma ... 187
Lysol 37

MACINTYRE, J., 49; Milligan, W., 77, 110, 209, 300, 334, 430, 485, 502. 517, 592, 593, 613, 654; Monsarrat, K., 91, 92, 107, 145, 288, 375. 381, 384, 442, 445. 510, 513 648, 651; Murrell, W., 196.
Madura Foot in Egypt 283
Magnesia for Oxalic Calculus 165
Magnesium Sulphate in Dysentery ... 246
Malaria 451
— Agglutination of Blood in 456
— Complications in 454
— in Dysentery 250
— — Egypt 278
— Freedom from in Paludal Districts 457
— Latent and Masked 456
— Nomenclature of Parasites 452
— Prophylaxis 457
— and Quinine 7, 458
— — — Injections 43, 459
— Sexes of Crescents 453
— Spleen Ruptured in 455
— Treatment of 459
— Tongue Markings in 455
Malarial Hæmaturia 460
— Parasite 452
Malignant Disease of Tonsils 657
Malt Diastase in Infant Feeding ... 407
Mammary Cancer... 175
Mania 462

PAGE

Mania, Hyoscine in 72
Massage of Buboes 164
— after Injury of Joints 423
— in Diabetes 220
— — Rheumatism 591
— — Septic Polyarthritis 547
— of Skin in Acne 105
Mastiche Filling for Teeth 642
Mastoid Operation 265
Mastoiditis, Treatment of 267
Materia Medica 1
Mauritius, Plague in 533
Meals, Drinking at and after 254
Measles 463
— Distinguished from Small-Pox 609, 611
— in Egypt 277
Meat and Ptomaine Poisoning... ... 705
Medicine, General, Review 67
Mediterranean Fever in Egypt ... 279
Megaloblasts in Pernicious Anæmia ... 114
Melancholia 463
— Codeine in 72
— and Diabetes 217
Membranous Colitis 206
— Enteritis 415, 417
— — Carbonic Acid for... 417
Meningitis, Epidemic Cerebro-spinal ... 184
Menopause, the 467
Menorrhagia 465
Menstruation, Disorders of 465
Menthol Applications in Pruritus ... 564
— in Chronic Rhinitis 592
— — Cough 441
— Spray for Adenoids 110
Mentholization in Ether Narcosis ... 38
Mercurial Sachets in Syphilis 631
— Stomatitis 636
Mercurials in Cardiac Failure 359
Mercurol in Gonorrhœa 348
Mercury in Acne 105
— Ammoniated, for Impetigo... ... 401
— Benzoate Injection for Bubo ... 165
— Bichloride in Encephalitis 294
— Ointment in Erythema Induratum Scrofulosorum 661
— — (Co.) in Keloid 425
— Oleate of, in Septic Polyarthritis ... 547
— — for Sterilizing Skin 241
— Perchlor., Injections in Puerperal Fever 572
— — in Rheumatism 586
— — — Typhoid.. 665
— as Prophylactic of Abortion... ... 100
— in Psoriasis 567
— — Purpura Hæmorrhagica 575
— and Syphilis 39, 630
— in Syphilitic Arthritis 135
— Yellow Oxide of, in Syphilis ... 631
Metabolism and Arterio-Sclerosis ... 128
Methyl Chloride Spray in Muscular Gout... 356
— Salicylate in Rheumatism 587
Methylene Blue in Malaria 460
— — v. Methyl Blue 460
— — a Nervous Sedative 40
Metrorrhagia in Young Girls 465
Middle-ear Catarrhs 273
— — Disease and Brain Abscess ... 155
— — Suppuration 93

PAGE

Middle-ear, Sclerosis of 269, 273
Mild Plague and Pestis Minor Differentiated 537
Milk Diet in Diphtheria... 235
— — Heart Disease 371
Milk, Modifying 404
— may be pre-digested in Typhoid ... 664
— and Powdered Meat 261
— in Typhoid 663
— Withheld in Infantile Diarrhœa 225, 407
— in Yellow Fever 698
Milks, Varying in Different Animals ... 402
Mineral Oil for Intestinal Catarrh ... 418
Miner's Knee 330
Mitral Obstruction 363
— Stenosis, Operation for 372
Mixed Toxins in Inoperable Sarcoma 579
Modifying Milk 404
Monsonia Tincture in Dysentery ... 248
Morphia in Blackwater Fever 144
— for Coccygodynia 205
— in the Hæmorrhage of Typhoid ... 670
— — Peritonitis 512
— — Valvular Heart Disease 372
Morphine in Albuminous Expectoration of Pleurisy 539
— — Cancer 173
— — Cardiac Insomnia 359
— — Cerebo-spinal Meningitis ... 186
— and Cocaine 24
— in Colitis 206
— — Cough 438
— Habit 468
— — Hyoscine in 70
— in Melancholia... 464
— for the Pain of Pneumonia 544
— Poisoning, Cocaine in 5
Mortality from Cancer, Increased ... 165
Mosquitoes and Yellow Fever 696
— repelled by Citronella 22
— and Filariasis 324
— and Malaria 451, 457, 458
Mosquito-net and Blackwater Fever ... 143
Moulds in the Stomach 235
Moure's Operation for deviated Septum Nasi 486
Movement of Injured Joints 424
Mucin in Ozæna 502
Multiple Sclerosis.. 603
Musk in Laryngitis 431
Mustard Foot-baths in Yellow Fever.. 698
Myasthenia Gravis 469
Mycetoma in Egypt 283
Mycosis Fungoides 471
Mydriatics in Cataract 180
Myelocene, in Tympanic Disease ... 260
Myelorrhaphy in Spinal Injury ... 618
Myoclonia, Myoclonus Multiplex ... 473
Myokemia 473
Myomectomy 313
Myopia 471
— High, Operation for 472
Myosis in Insanity 411
Myospasm 473, 474
Myotics in Cataract 181
Myotonia Acquisita 474
Myringotomy, Bleeding after 273
Myxoneurosis Intestinalis 415

PAGE

NÆVUS, X-ray Treatment for .. 695
Nails, Striated, and Insanity ... 409
Nauheim Baths in Valvular Heart Disease 369
Naphthol in Acne... 105
— for Hyperchlorhydia 256
— Ointment for Favus 286
Naphthol-Sulphur for Freckles ... 331
Narcosis, Adequate Time for 116
Narcotic, Alcohol as a 10
Narcotic Habit, Novel Treatment of ... 5
Narcotics in Insanity 413
Nasal Deformity, Paraffin Injections for 490
— Disease and Asthma 78
— Feeding (in Diphtheria) 236
— Hydrorrhœa 489
— Operations for Deafness 93
— — Middle-ear Disease 78
— Tuberculosis 489
Naso-pharyngeal Hæmorrhage Mistaken for Hæmoptysis 485
Naso-pharynx, Sclerotic Hyperplasia of 517
Nepenthe in Melancholia 464
Nephritis 474
— Surgery in 475
Nerve-changes in Beri-beri 142
Nerve Tonics in Colitis 206
Nerves, Suture of... 480
Nervous Diseases, Review 70
— Palpitation, Cactus in 17
— Symptoms in Pernicious Anæmia ... 114
— System, Effects of Alcohol on ... 231
— — and High Altitudes 23
— — Needs of, in Infant 403
Neuralgia, Abbe's Method of Operating for 483
— Trigeminal 70, 481
— — Surgical Treatment of .. 90, 482
Neurasthenia 484
— Cordis 366
— Dormiol in 28
Neuritis 484
Nitrate of Silver in Incontinence of Urine 149
— — — in Multiple Sclerosis 604
— — — Applications in Pruritus Ani 564, 566
— — — in Chronic Rhinitis 592
Nitre, Sweet Spirits of, in Sclero-derma 602
Nitrite of Sodium and Blood-pressure 375
Nitrites in Valvular Cardiac Disease ... 372
Nitrogen Gas, Compression by Injection in Phthisis 23, 70, 523
Nitro-Glycerin, Abuse of 4
— — and Anuria... 32
— — in Heart Disease 370
— — — Morphinomania 469
— — — Pneumonia 545
Nitro-Propiol as a Test for Sugar ... 678
Nitrous Oxide Anæsthesia, Hilliard's Method 118
Nomenclature of Malarial Parasite ... 452
Normal Salt Solution in Blackwater Fever 144
Nose, Diseases of 77, 485
Nutrition, Alcohol and 230

PAGE

OBESITY and Valvular Disease ... 369
Occupation, in Myopia 472
Oertel's Cure for Heart Affections ... 361
Œsophagus, Dilation of 492
— Malignant Stricture of 494
Ohm's Law in Electro-Therapeutics .. 63
Oil Enemata in Constipation 420
— — — Intestinal Dyspepsia 419
— Injections 496
Ointment for Ringworm 594
Oleate of Mercury in Polyarthritis ... 547
Oöphorectomy in Cancer ... 170, 171
Open Air in Pernicious Anæmia ... 115
Operation, Effect on Leucocytes ... 153
— in Extra Uterine Pregnancy ... 550
— and Hæmoglobin in the Blood ... 29
— — Symptoms of Diabetes 221
Ophthalmia in Egypt 287
Opium in Colitis 206
— — Dysentery 248
— — Epilepsy 298
— — Enterospasm 297
— — the Hæmorrhage of Typhoid .. 670
— — Heart Complications of Rheumatism 585
— — Infantile Diarrhœa 226
— — Melancholia 464
— — Peritonitis 513
— — Puerperal Fever 572
— — Trigeminal Neuralgia 482
— — Typhoid, Caution Needed with 677
— Poisoning, Cocaine in 5
— Prophylactic of Abortion ... 101
Optic Nerve Sheath, Hæmorrhage into 578
Oral Sepsis and Pernicious Anæmia ... 113
Organacidia Gastrica Simplex 255
Organo-Therapy in Dementia Praecox 214
Oriental Boil 331
Orthoform, in Diabetic Laryngitis ... 43?
Ossiculectomy in Ear Disease 265
Osteo-Plastic Filling for Teeth... ... 643
Otitis, and Brain Abscess 155
— Chronic, Operation for 265
— Media 263
— — and Diabetes 222
Otorrhœa and Brain Abscess 156
Ovarian Extract at the Menopause ... 468
— Pregnancy 82
— — Case of 548
— Preparations Uncertain in Effect 500
— Tumours 83, 498
Ovaries, Conservative Surgery of ... 499
— Diseases of 497
Ovariotomy 499
Ovaritis, Sclerocystic 497
Oxaluria, Cause of 165
Ox-Serum in Chorea 192
Oxygen in Pneumonia 545
— Inhalation in Cardiac Failure ... 359
Ozœna 77, 502

PRIESTLEY, J., 699
Paludal Districts, Malaria Absent in 457
Pain after Extraction of Teeth... ... 634
— of Cancer Relieved by X Rays ... 60
Palliative Treatment of Cancer of Uterus 684

PAGE

Palpitation of Heart 366
— Nervous, Cactus in 17
Pancreas and Diabetes 216
— Surgery of 503
— Wounds of 504
Pancreatic Calculus 504
— Cysts 504
Pancreatitis, Chronic 504
Papillomatous Epitheliomata, Chloride of Zinc in 20
Paracentesis in Cirrhosis 196
— — Hypopyon 208
Paraffin Injections for Incontinence ... 148
— — — Nasal Deformity 490
— — — — Disease 78, 502
Paraffins for Injection Purposes ... 490
Paraldehyde in Insanity... ... 413, 414
— — Melancholia 404
Paralysis, Asthenic 505
— Facial 505
— General 506
Parasite, Malarial 452
Parolein in Seborrhœa 606
Passive Movements in Rheumatism ... 590
Pellagra in Egypt... 280
Pemphigus and Small-pox Differentiated 611
Peppermint, Oil of and Ether Narcosis 38
Perchloride Lotion for Impetigo ... 401
— of Iron in Cardiac Dilatation ... 362
— — Mercury in Purpura Hæmorrhagica 575
Perforation of Stomach 87
— from Typhoid Fever 96. 670
— Importance of Early Operation ... 671
Pericardial Effusion, Surgical Treatment of 510
Pericarditis... 367
Pericardium, Opening of 92
Perigastric Adhesions 624
Perinæum, Prevention of Laceration in 425
Periodical Insanity 512
Peritomy in Hypopyon 208
Peritonitis, Acute... 512
— Tubercular 92, 513
Perityphlitis and Appendicitis... ... 86
Permanganate in Gonorrhœa 346
— Douche in Infective Arthritis ... 133
— of Potash for Coryza 209
— — — in Dysentery 40
— — — — in Lupus 659
Perineal Prostatotomy 557
Pernicious Anæmia 113
— Myopia 471
Peroxide Spray in Lupus 660
Pessaries in Uterine Displacement ... 84
Pestis Minor 537
Phantom Abdominal Tumours... ... 97
Pharynx, Sclerotic Hyperplasia of ... 517
Phenacetin for Pruritus 564
— in Rheumatism 585
— — Spasmodic Dysmenorrhœa ... 467
Phenol Phthalein as a Purgative ... 43
Philippines, Cholera in the 190
Phosphoric Acid in Rheumatism ... 586
Phosphorus, Non-Oxidation of ... 41
Photo-Therapy 42
— — in Furunculus 331
Phthisis 517

PAGE

Phthisis and Arthritis 75
— Bacillus of 69
— the Blood in 519
— and Climate 22
— Creosotal in 18
— Dionin in 28
— in Egypt 282
— Hetol for 34
— Urea in 69
Pilocarpine in Morphinomania 469
Pine Apple as a Digestive Aid.. ... 260
Pine Oil (Pumilionis) and Ether Narcosis 439
Placenta, Expulsion of the 428
Plague 71, 533
— Alcohol and 231
— Bacillus of 534
— in Egypt 279
— in Rats and Man 536
— and other Hæmorrhagic Septicæmias 534
— Serum Injections in 535
Plasmon 233
Plastic Dental Filling, new 95
Pleurisy 538
— Early Symptom of 539
Plombières, Baths of in Colitis... ... 206
Pneumocephalus, Artificial 400
Pneumococcal Arthritis 134
Pneumonia 541
— Creosotal in 17
— Croupous, Diphtheritic Antitoxin in 14
— Jacket 543
— Leucocytes in 152
Pneumothorax, Intra-pleural Pressure in 441
Pneumotomy 443
Podophyllin in Diarrhœa 418
— — Neurasthenia 484
Poisoning by Lysol 38
— — Ice Creams 705
— — Pork Pies 704
Polyarthritis, Septic 547
Polycythemia and Operations 29
Porcelain Roots for Teeth 635
Potash Salts in Pernicious Anæmia ... 115
Potassium Acet. in Cyclical Albuminuria 675
— Bromide in Eclampsia 569
— — for the Insomnia of Pneumonia .. 544
— — Pruritus 564
— Caution in Employment of 8
— Iodide a Cause of Purpura 575
— — in Multipie Sclerosis 604
— — — Polyarthritis 567
— Permanganate in Lupus 651
— Salts in Gout 356
Potatoes in Diabetes 219
Poultices in Pneumonia 543, 544
Predigested Milk in Typhoid 664
Pregnancy, Extra Uterine ... 83, 547
— with Fibromyomata 319
— Ovarian 82
— and Ovarian Tumours 501
Pregnant Women, not Welcome in a Sanatorium... 530
Pressure over Vagus in Phthisis ... 440
Primary Ovarian Pregnancy 548
Projectile Injuries to Eyes 301

	PAGE
Prolapse of Uterus	688
Prophylaxis of Yellow Fever	696
Prostate Enlarged, may be Confused with Carcinoma	557
— — Radical Treatment of ...	86, 552
— Shelling out of...	553
— Enlarged, Technique of Operation for	561
— Radiography of	626
— Suprapubic Enucleation of	561
Prostatitis, Gonorrhœal	350
Prostatotomy, Perineal	557
Protargol Ointment for Endocarditis	365
— in Gonorrhœa	346, 348
Protein in Infant Feeding	401
Pruritus	563
— Ani	564
— Senile	566
— Vulvæ	565
Pseudo Rheumatisms	588
Psoriasis	567
— with Arthropathy	567
Ptomaine Poisoning from Meat ...	704
— Rashes and Small-Pox	609
Pudic Nerve, Resection of in Pruritus Vulvæ	565
Puerperal Eclampsia	568
— Fever	571
— Insanity...	72, 573
Pulmonary Complications in Malaria...	455
Pupillary Symptoms in Insanity ...	410
Purgatin	43
— in Eczema	275
Purgatives, Care Needed with in Peritonitis	512
— in Dysmenorrhœa	467
Purpura	574
— Possibly Allied to Rheumatism ...	575
Pus-Cocci and Rheumatism	73
Pyæmic Skin Eruptions and Small-Pox	612
Pyloric Stenosis	88
Pyloroplasty	625
Pyrogallic Acid in Psoriasis	568
— Ointment in Leprosy...	435

QUASSIA for Hyperchlorhydria ...	256
Quinic Acid in Gout	355
Quinine, Arseniate, in Malaria ...	460
— and Blackwater Fever	143
— Caution in the employment of in Fever	7
— as a Disinfectant	45
— in Dressing Wounds	44
— Enemata in Dysentery	251
— in Hypopyon	207
Injections of	43, 459
— — in Malaria	459
— — Puerperal Fever	572
— and Iron in Gangrene of Tonsils ...	636
— in Malaria	7, 458, 459
— and Malarial Fever	144
— in Malarial Hæmaturia	461
— — Multiple Sclerosis	604
— — Puerperal Insanity ...	72, 574
— Rash	243
— in Typhoid	669
Quinine Sulphate for Prolapsed Uterus	688
Quinlan's Syringe for Paraffin Injections	490

REED, B., *pp.* 251, 415; Rockwell, A. D., 62.	
Radiography of Bladder and Prostate	626
— — Kidney	625
— — Ureter	626
— — Urinary Stone	86
Rashes in Measles	463
Rats and Plague	71
Raynaud's Disease	70, 576
Rectal Feeding in Diphtheria	236
— — — Stomach Dilatation	258
Rectal Surgery	85, 577
Rectum	577
— Carcinoma of	577
Red Oxide of Mercury in Erythema Induratum Scrofulosorum ...	661
Reflexes, time of in Insanity	412
Reindeer Tendon Sutures ...	82 241
Relapsing Fever in Egypt	277
Remedies, Dictionary of	8
Remineralisation in Rheumatism ...	592
Resection of Thorax	651
Resorcin for Acne	104
Resorcin in Gastric Atony	260
— Application in Pruritus	564
— for Freckles	331
— in Typhoid	669
Respiratory Diseases in Egypt ...	281
Rest in Acute Endocarditis	371
— — Cardiac Failure	358
— — Dyspepsia 255, 256,	260
— — Peritonitis	512
— — Rheumatism	584
— — Septic Polyarthritis	547
— Treatment of Syphilis	632
— in Treatiug Buboes	164
— — Valvular Cardiac Disease ...	369
Retarded Eruption of Teeth in Rickety Children	637
Retina, Condition of in Myopia ...	472
— Diseases of	578
— Obstruction of Central Artery ...	578
Retinal Obstruction, Primary Thrombosis in...	578
Retroversion of Uterus	686
Re-Vaccination	700
Review of Medicine and Surgery ...	67
Review of Therapeutics	1
Rheumatic Sudamina and Small-pox differentiated	612
Rheumatism and Purpura	575
— Acute	580
— Aspirin in	15
— Chronic	588
— and Epistaxis	300
— in Egypt	281
— Review	73
Rheumatoid Anthritis	75, 129
Rhinitis	592
— and Lupus Erythematosus	450
— and Sinus Disease	77
— Vaso Motoria	593
Rhinophyma	594
Rhinorrhœa, Cerebro-spinal	485

PAGE
Rhinoscopy 593
Rice and Beri-beri 141
Richard's Psoriaris Ointment 568
Rickets in Egypt 287
Rickety Children, Retarded Tooth Eruption in 637
— Teeth 636
Ringworm 594
Roborat 233
— Effect on Urea Product 234
Rodent Ulcer 595
— — and X-rays 57, 695
Röntgen Rays in Cancer 170
— — — Erythema Induratum Scrofulorum 661
— — — Phthisis 518
— — *see* also X-rays ... ...
Rötheln 597
— and Small-pox 609
Rubella 597
Rumpel's Method of Diagnosis of Œsophageal Dilatation 492

SANDWITH, F. M., *p.* 276; Saundby, R., 165, 214, 474, 674; Schley, W. S., 89, 155, 156, 159, 298, 400, 482, 505, 613, 615, 620, 621; Shaw, J., 72, 212, 407, 462, 463, 506, 512, 573; Spencer, W. G., 86, 95, 103, 104, 125, 380, 437, 503, 623, 624.
Sago in Typhoid 664
Salicylate of Methyl in Rheumatism .. 587
— of Soda, Blindness from 112
— — — in Diabetes 220
— — — in Encephalitis 294
— — — in Rheumatism 586
Salicylates in Arthritis 131, 135
— — Erythema Nodosum 301
— — Rheumatism 585
— — Rheumatic Endocarditis ... 371
Salicylic Acid in Acne 104
— — for Diabetic Pruritus 220
— — Enemata in Dysentery 247
— — in Multiple Sclerosis 604
— — — Rheumatism 585
— — — Seborrhœa 606
— Plaster for Freckles 331
Saline Infusions, Caution in Employment of 3
— Solution Injected in Hæmorrhage of Typhoid 670
Salines in Dysentery 246, 250
— in Pneumonia 543
Salol in Dysentery 246, 250
— in Hyperchlorhydria 256
— — Pruritus 564
— — in Small-pox 46, 612
— — Tympanitis of Typhoid 673
— with Castor Oil in Neurasthenia ... 484
Saltpetre (commercial) in Arterio-Sclerosis 373
Salt Solution Injections in Infantile Diarrhœa 226
Sandal Wood Oil in Gonorrhœa 346, 348, 350
Sanitary Officers, Security of Tenure for 699
— Science 699
Sanatorium Treatment of Phthisis ... 523
PAGE
Sanatorium Treatment, Selection of Cases necessary ... 528, 532
— — Unfavourable Cases for 529
Santonin for Ascaris 285
Sarcoma, "Christian Science" Treatment of 599
— Inoperable 597
— of Uterus 681
— in Brain 161
Scabies in Egypt 286
Scarlet Fever 600
— — in Egypt 277
— — Leucocytes in 152
— — Serum in 68
— — and Small-pox differentiated ... 608
Sciatica 601
Sclerocystic Ovaritis 497
Scleroderma 602
Sclerosis of Middle-ear 269
— Multiple 603
Sclerotic Hyperplasia of Pharynx ... 517
Sclerotomy for Glaucoma 333
Scrofula in Egypt 281
Scurvy in Egypt 286
Seborrhœa 604
— Corporis 605
— Oily 105
Secondary Cataract 182
Sedative, Methylene Blue as a . 40
— Stypticin as a 48
Segregation of Lepers 433
Semi-lunar Cartilages, Fracture of ... 332
Senile Pruritus 564, 566
Septic Absorption, Diptheritic Antitoxin in 14
— Polyarthritis 547
Septum Nasi, Deviation of 486
Serum, an Anti-alcoholic 110
— in Inebriety 70
— Injection in Diphtheria 237
— for Typhoid Fever 674
— Therapy in Carcinoma 174
— — in Dementia Praecox 214
— Treatment of Malaria 459
— Treatment of Scarlet Fever .. 68, 601
Sheep's Blood, Transfusion of 440
Sidonal in Gout 355
Silk Sutures 240
Silver Nitrate in Chronic Rhinitis ... 592
— — in Gonorrhœa 346, 350
— — — Multiple Sclerosis 604
— — — Colitis 206
— — Enemata in Dysentery ... 247, 251
Simulation of Abdominal Disease ... 97
— — Cancer 172
Sinapisms in Yellow Fever 698
Sinus Disease and Rhinitis 77
— Suppuration 78
Sinuses, Venous, Injuries to 158
Skin Diseases, X-rays in 692
— Grafting, a Painless Method ... 607
— Lesions produced by Drugs ... 3
— Sterilizing of Patient's 241
— Tuberculosis of 659
Skull, Fractures of 256
Sleep in Mental Disease, Chloretone for 71
Sleeping Sickness 71
— — and Filaria Perstans 327
Small-pox 608

	PAGE
Small-Pox in Egypt	277
— and Salol	46
— in Unvaccinated Cases	610
— and Vaccination	699
Smell in General Paralysis	72
— Hallucinations in Insanity	412
Smoke Prevention	711
Snake Venom in Treatment of Plague...	536
Soap Injections in Cancer	174
Soda Bicarbonate in Diabetic Coma ..	219
— Sulphate in Tympanitis of Typhoid	673
Sodium Benzoate in Neurasthenia ...	484
— Bicarbonate before Operation on Diabetics	223
— Bromide in Rheumatism	587
— Cacodylate in Purpura	574
— Citrate in Rheumatism	586
— Salicylate in Nephritis	474
— — — Rheumatism	586
— Sulphate Enemata in Yellow Fever	698
— Sulphate in Purpura	574
— Sulphocarbolate in Neurasthenia ...	484
Soft Sore, Nature of	80
Solanum Carolinense	47
Somatose in Peritonitis	512
Somnoform as an Anæsthetic	118
Sozoiodol in Larnygitis	431
Spa Waters in Rheumatism	592
Spartein Injections for Purpura ...	574
Spectrally Blue Light in Phthisis ...	521
Speculum in Ear Disease	263
Sphenoidal Sinuses	613
Sphincter Ani, Restoration of	124
Spina Bifida 91,	613
— — Dangers of Sac Incision	614
Spinal Anæsthesia	620
— — Disappointing Results of... ...	2
— Cocainization...	91
— Cord Severed and Fair Recovery ...	618
— Fracture, Surgical Interference ...	616
— Injury, Justification for Interference	618
— Surgery, Review	90
— Tumours	621
Spine, Surgery of	615
— Tuberculosis of	620
Spino-Facial Anastomosis for Facial Paralysis	505
Spleen and Cirrhosis of Liver	194
— Removal of in Banti's Disease ...	138
— Ruptured in Malaria...	455
— Surgery of	623
Splenic Anæmia	136
— — Removal of Spleen for	623
Sponging in Typhoid	668
Sprains of Hip-Joint	393
Stains for Malaria...	454
Static Electricity in Neurasthenia ...	485
— Machines for High-Frequency Currents	55
— — for X-Ray Work	49
Stay Knot in Ligatures	123
Steam Application to Uterus for Inoperable Cancer	685
Steel Fragments in Eye, Haab's Magnet 94,	303
Sterilizing Instruments	241
Stertor, its Varieties and Meanings ...	623
Stimulant, the Value of Alcohol as a ...	12
Stockings, Arsenic in	243
Stomach, Atony of	258
— Digestive Powers of	253
— Dilatation of	257
— and Insanity	414
— Malignant Disease of...	88
— Surgery of	624
— Tube, Introduction of	261
— Washing-out 256,	260
Stone in the Urinary Tract	625
— Radiography of 86,	625
Strapping the Side, for Pain of Pneumonia	547
Striated Nails in Insanity	409
Stricture, Malignant, of Œsophagus ...	494
— of Urethra	343
Strophanthus in Cardiac Hypertrophy	370
Strychnine in Amblyopia	111
— — Alcoholism	229
— — Cardiac Dilatation	362
— — the Cardiac Failure of Pneumonia	544
— — Cardiac Failure	359
— — Ileus...	48
— Injections for Purpura	574
— in Malarial Hæmaturia	461
— — Morphinomania	469
— — Multiple Sclerosis...	604
— — Nasal Hydrorrhœa	489
— not a Permanent Stimulant... ...	4
— in Stomach Atony	260
— for Stomach Dilatation	258
— — Typhoid	666
Stypticin in Uterine Hæmorrhage ...	48
Styptics, Gelatin (Ingested)	34
— Quinine...	45
Subbotin's Operation for Bladder Extroversion	145
Subcutaneous Injections in Malaria ...	459
Subgallate of Bismuth in Morphinomania	469
Sublimate Lotion for Acne	104
Subphrenic Abscess	103
Sugar and Gastric Secretion	260
— New Method of Testing for... ...	679
— Tests	678
Sulphate of Magnesia in Dysentery ...	282
— — Quinine for Prolapsed Uterus ...	688
— — Soda in Tympanitis of Typhoid	673
Sulphide of Barium in Ringworm ...	594
— — Calcium in Ringworm	595
— — for Depilation	242
Sulphocarbolate of Sodium in Gastric Atony	260
Sulphonal in Insanity 413,	414
Sulphur in Acne	105
— — Dysentery	250
— — Seborrhœa	606
Sulphuric Acid arom. in Colitis ...	206
— — in Pruritus	564
Summer Diarrhœa in Infants	407
Sunstroke in Egypt	283
Super-heated Air in Diabetes	216
Supra-renal Extract in Cardiac Disease	371
— — — Diabetes	215
— — — Eye Complaints	304
— — — Eye Work	94
— — — Nasal Therapeutics	489
— Gland, the Real Value of	6

PAGE

Suppuration of Middle-ear 93
Surgery, General, Review 81
— and Diabetes 221
— of Abdomen 95
— — Anus... 124
— — Brain 155, 400
— — Ear 265
— — Fractures 329
— — Heart 375
— — Joints 423
— — Liver... 196
— — Lungs 442, 447
— — Nose 486
— — Pancreas 503
— — Prostate 552
— — Rectum 577
— — Spine 615
— — Stomach 624
— — Thorax 651
— — Uterus 311
Surgical Dressing, Acetozone as a ... 9
— Interference in Nephritis 475
— Treatment of Bright's Disease ... 475
— — — Empyema 288, 290
— Epilepsy 298
Suture of Arteries.. ... ... 82, 127
— — Heart Wounds 91, 376
— Intestinal 95
— of Nerves 480
— — Spinal Cord 91
Sutures, Disinfecting 240
— Reindeer Tendon 82
Sweet Spirits of Nitre in Scleroderma 602
Sympathetic, Resection for Basedow's Disease ... ... — 335
— — — Glaucoma 334
Syphilis 627
— and Arthritis 135
— Bacillus of 80
— in Egypt 283
— Eruptions and Small-pox differentiated 611
— Iodoline in 36
— causing General Paralysis 507
— and Life Assurance 629
— Mercury and 39
— New Parasite in 628
Syphilitic Teeth 636
Syphiloma in Brain, Removal 160
Syria, Cholera in 190

TUBBY, A. H., *p.* 389; Turner, J. G., 95, 632.
Tabes 437
Tachycardia 366
Tænia 691
Tannic Acid in Infantile Diarrhœa ... 226
Tannoform Powder in Phthisis ... 522
Tar, use of in Pruritus 564
— and Glycerine in Psoriasis 568
Tarsorrhaphy, Case of 209
Tea, Afternoon 259
Teeth, the 632
— Erosion of 95
— in Rickets 95
Temperature, Alcohol and 231
Terpenes and Ether Narcosis 439
Testicles, Tuberculosis of 646

PAGE

Testicles, Tuberculosis, rare in both simultaneously 647
Testis, Imperfectly Descended... 92, 648
Tests for Sugar 678
Tetany of the Stomach 261
Therapeutic Progress 1
— Value of Alcohol 10
Thioform for Diabetic Dyspepsia ... 220
Thiol in Tonsillitis 655
Thiosinamin in Scleroderma 603
Thoracic Aneurysm 368
— Resection 92
Thoracoplasty for Empyema ... 289, 290
Thorax, Resection of 651
Throat Affections and Acute Rheumatism 74, 583
Thrombosis of Lateral Sinus 268
— in Retinal Obstruction 578
— of Veins 654
Thymol Application in Pruritus ... 564
— in Ankylostomiasis 284
— for Worms in Dysentery 250
Thymus in Asthenic Paralysis 505
— in Gout 355
Thyroid, Atrophy of in case of Scleroderma 602
— Extract in Scleroderma 602
— Gland in Cancer 170, 171
— in Dementia Præcox... 214
— — Psoriasis 567
Thyroidectony in Graves's Disease ... 70
— for Exophthalmic Goitre 335
Thyroidin in Seborrhœa 607
Tongue, Cancer of 178
— Markings in Malaria 455
Tonsillitis 655
Tonsiliotomy Rash 656
Tonsils 654
— Gangrene of 656
— Malignant Disease of 657
— and Rheumatism 74, 583
— Tuberculosis of 656
Tooth Fillings, Temporary 638
— Pulp, Tumour of 645
Top-milk, Qualities of 404
Tourniquet in Raynaud's Disease 70, 576
Toxæmia due to Worms 692
— and General Paralysis 408
Toxin of Beri-beri 139
Toxins and Insanity 407
— and Pernicious Anæmia 115
Trachoma, Cuprol in 27
Transfusion of Blood in Tuberculosis... 440
Tremor Cordis 367
Trendelenburg's Operation for Varices 82, 690
Trigeminal Neuralgia 70, 481
— — Surgery of 482
Trinidad, Filariasis in 326
Trional in Chorea 192
— in Insanity 413
— — Cerebro-spinal Meningitis ... 126
— — the Insomnia of Pneumonia ... 544
— — Melancholia 464
Trochanter, Fractures of Great ... 392
Tropa-cocaine for Spinal Anæsthesia.. 620
Tropical Abscess 104, 437
— Medicine, Review 71
Tropon, Dietetic Value of 233
Trympanosoma in Man 627

PAGE

Tube, Insertion of, for Stricture of Œsophagus 495
Tubercle Bacillus, Agglutination Reaction of 518
Tubercular Adenitis 107
— — Radical Operation for 109
— Disease of Hip Joint 394, 396
— Peritonitis 513
Tuberculin Diagnosis in Adenitis ... 108
— Injections for Diagnosis in Pleurisy 540
— Reaction after Pleurisy 539
— Test for Tubercular Peritonitis ... 514
Tuberculosis, *see* Phthisis 522
— the Blood in 519
— Blood Transfusion in 440
— of Choroid 192
— of Joints 134
— Nasal 489
— and its Prevention 704
— of Spine 620, 659
— of the Testicle 646
— — Tonsils 656
— — Lungs, Surgery in 447
Tuberculous Arthritis 134
— Laryngitis 431
— Otitis 264
Tubes for X-ray Work 52
Tumours of Brain... ... ... 90, 159
— Gastric 261
— in Liver, Pedunculated 437
— Ovarian 83, 498
— of Ovaries and Pregnancy 501
— — the Tooth Pulp 645
Turpentine in Muscular Gout 356
— Oil and Ether 439
— in Tympanitis of Typhoid 673
Tympanites, Creosotal good in Influencing 18
Tympanitis complicating Typhoid ... 673
Typhoid, Acetozone in 8
— Bacillus causing Brain Abscess ... 156
— as a Dust-borne Disease 703
— Fever 668, 661
— — The Bath in 2, 666
— Patients Safely Removed by Ambulance 662
— Perforation in 96
— Treatment of the Febrile Condition 666
— Value of Alcohol in 12
Typhus Fever, Distinguished from Small-pox 609
— in Egypt 277

UGANDA, Sleeping Sickness in ... 327
Ulcer, Malignant and X-rays ... 56
Ulceration of Duodenum 87
— — Stomach 87, 262
Ulcers, Leg, Boro-chloretone in ... 21
Union, bony, after Fractures 329
Uræmia, see Nephritis.
— Ether in 474
Uræmic Coma, Blood-letting in ... 474
Urea as a Diuretic in Yellow Fever ... 698
— Effect of Roborat on 234
— in Malarial Hæmaturia 461
— — Phthisis 69, 520
Ureter Radiography 626

PAGE

Urethra, Diverticulæ of and Gonorrhœa 339
— Strictures of 343
Uric Acid and Gout 352, 354
Urinary Stone, Radiography 625
— Surgery, Review 86
Urine 674
— Blue, a Case of 676
— Incontinence of 148
Urosin in Gout 355
Urotropin, a Cause of Hæmaturia ... 678
— in the Cystitis of Typhoid 674
— Ill Effects of 48
— in Gout 355
— Before Operation for Enlarged Prostate 556
Urticaria Populosa and Small-pox Differentiated 612
Uterine Colic 466
— Displacements 84
— Fibroids, Structure of 306
— — and Inversion 309
— Fibromyomata 83, 305
— Hæmorrhage, Stypticin in 48
Uterus, Cancer of... .. ... 84, 681
— Displacement of 686
— Inversion of 688
— Prolapse of 688

VACCINATION and Erythema Multiforme 301
— and Herpes 384
— — Small-Pox 699
Vaginal Fistulæ in Egypt 287
— Operations for Myomata 314
Valerian in Epilepsy 298
Valsalvan Treatment, Evil from 121, 124
Valvular Disease of Heart 369
Varicose Veins 82, 688
Varnishing Hands for Asepsis 242
Vaseline in Seborrhœa 607
Vegetarianism in Psoriasis 567
Venereal Diseases, Review 79
Vegetable Diets 232
Veins, Thrombosis of 654
Venous Sinuses, Wounds of 158
Vesico-Vaginal Fistula 149
Vesicular Eczema, Dymal in 28
Vichy Water in Yellow Fever 668

WALKER, J. W. T., 79, 164, 336, 627; Walker, N., 104, 107, 111, 187, 243, 274, 300, 301, 331, 383, 399, 401, 425, 436, 449, 471, 563, 567, 574, 594, 595, 602, 604, 659, 692.
Warm Water for Acne 104
Waters, Natural, in Gout 356
Weil's Disease in Egypt 279
— — Epidemic 423
Wet Packs in Dysentery 247
— — — Pneumonia 543
— Sheets in Treatment of Typhoid ... 668
Whey in Peritonitis 512
— — Typhoid 664
Widal's Reaction in Malignant Endocarditis 365
Wimshurst Machine for X Rays ... 49

PAGE

Worms 691
— in Dysentery 250
— — Egypt 283
Wounds, Chloretone for 21
— of Heart 375
— — Joints 425
— — Lungs 445
— Quinine as a Dressing for 44

X RAYS, the 49
— — — in Acne 106
— — — Alopecia Areata 111
— — — Cancer 171
— — Injury from 692
— — — Kidney Disease 625
— — Locating Brain Tumours .. 161
— — in Lupus Erythematosus ... 450
— — — Mycosis Fungoides 471
— — — Phthisis... 518
— — — Photography of Brain ... 90

PAGE

X Rays in Rodent Ulcer 595
— — — Skin Diseases 692
— — Tubes for 52
Xanthoma 692

YEAST Cells causing Dyspepsia ... 236
Yellow Fever 693
— — and Mosquitoes 71, 636
— — Unknown in Egypt 278
Yellow Oxide of Mercury in Syphilis 631

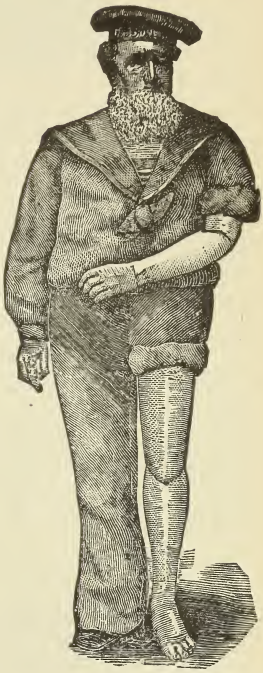
ZINC in Seborrhœa 607
— Chloride in Cancer 20
— — — Hydrocele 400
— — for Uterine Fibromyomata ... 312
— Oxide Plaster for Holding Incisions 202
— Sulphate in Gonorrhœa 346
Zonular Cataract... 179
Zoster 383
Zymosia Gastrica 255, 256

Artificial Legs and Arms

MARKS' PATENTS of 1854, 1863, 1865, 1880, 1886, 1887, 1892, 1893, 1895 cover all the accredited improvements in artificial legs and arms, and make the Marks' Artificial Limbs peerless. Rubber feet remove jar and make the stump-bearings easy. Rubber hands extend the limit of accommodation.

Light, Durable, Practical. Do not get out of order, and inexpensive to wear. Appreciated by over twenty-seven thousand wearers and thousands of surgeons of prominence.

The limits of the utility of Marks' Artificial Limbs are unbounded. Persons wearing them engage in every occupation and profession.



This cut is from a photograph of John J. Winn, Signal Quartermaster on

"U. S. S. ONEIDA,"

who lost his leg above the knee, and arm above the elbow, by the explosion of a shell while the steamer was engaged in the attack on Forts Jackson and St. Philip, under the command of

ADMIRAL FARRAGUT

April 22, 1862. The following letter tells what the old warrior knows about Artificial Legs and Arms:

To A. A. MARKS, New York:

DEAR SIR:—I write you this simply to say that my experience with your Artificial Limbs, together with considerable experience with other kinds induces me to prefer yours by all odds. The special point I desire to mention is the simplicity of construction in your leg, whereby I can take it apart, lubricate and adjust with my one natural hand, and put together again without any help. My good solid weight of **240** pounds gives the leg a good trial, and yet I feel a confidence in it that I have never had in any other kind.

Yours sincerely,

JOHN J. WINN.

FORTY HIGHEST AWARDS.

Indorsed and purchased by the United States and several other governments.

Send for **Marks' Treatise on Artificial Limbs,** and become acquainted with particulars. The book contains 500 pages, illustrated by 800 cuts, and a thousand testimonials. Instructions are given how to take measurements and obtain artificial limbs without leaving home.

A. A. MARKS,

701 Broadway, New York

ARCHIVES OF PEDIATRICS

20th Year — 20th Year

A Monthly Journal devoted to the Diseases of Infants and Children. Edited by Walter Lester Carr, M.D.

"Pediatrics is the specialty of the general Practitioner."

"That pediatrics is fully established as a special department of medicine cannot be doubted. Any diversity of opinion on the subject arises from lack of agreement regarding the meaning of the word specialty. No one believes that pediatrics is a specialty like ophthalmology, which should be practiced only by a limited body of men. It is, however, none the less a special department, demanding special study and a certain number of special workers."

"The peculiarity of pediatrics as a department of medicine, is in the fact that it is practiced by two different classes of men—*the general practitioner* and the strict specialist. Pediatrics is an offshoot of the department of general medicine and must always continue to be closely allied to it. Man, the highest animal of creation, starts in life the most imperfectly developed and most helpless of all. The formative and developmental period, therefore, is in many regards the most important one of his life. Hence the proper management of infant man in health and the treatment of the many diseases peculiar to this period of growth and development form a specialty of very great importance. *The truth of this statement is not modified by the fact that the majority of sick children are treated by the general physician."*

Price, $2.00 a year. Single Numbers, 20 cents.

INTERNATIONAL MEDICAL MAGAZINE.

12th Year — 12th Year

A Practical and Useful Monthly Journal, Especially intended for the general practitioner. Contains the best there is in medical literature. Edited by Boardman Reed, M.D., with the collaboration of 37 Department Editors.

For the General Practitioner. No journal anywhere, in any language, offers so valuable a feast of good things. By means of a special novel feature, entitled:

"Talks to General Practitioners." There will be published regularly a series of lectures on the most practical subjects connected with each of the clinical specialties. Several such lectures or "talks" may be expected in each issue.

In these "talks" regular and systematic instruction will be given in so much of the specialties as it is necessary for the general practitioner to learn and practicable to teach through the columns of a journal.

By the complete system of abstracting, the general practitioner will also be kept fully abreast of the best work by the ablest men in the profession everywhere.

The physician who takes and reads THE INTERNATIONAL MEDICAL MAGAZINE, will therefore be fully informed as to current medical progress.

Price, $1.00 a year. Single Numbers, 15 cents.

E. B. Treat & Co., Publishers, 241-243 West 23d Street, NEW YORK

Recent Publications

International Medical Annual, 1903. 21st Year of Publication. A Year Book of Treatment. A complete work of reference, combining the features of an Annual Retrospect with those of a Medical Encyclopedia. 8vo. 700 pages. Ill. Cloth, **$3.00 net.**

Childbed Nursing with Notes on Infant Feeding. By CHARLES JEWETT, A.M., M.D., Sc. D., Professor of Obstetrics and Diseases of Women in the Long Island College Hospital, Brooklyn, N. Y. **Fifth Edition.** 12mo. 96 pages. Cloth, **80 cents net.**

Syphilis—A SYMPOSIUM. Contributions by Seventeen Distinguished Authorities. They give concisely the most recent and accurate information on the various phases of this important subject. 12mo. 125 pp. Clo., **$1.00 net.**

Physical Diagnosis in Obstetrics. A Guide in Ante-Partum, Partum and Post-Partum Examinations. By EDWARD A. AYERS, A.M., M.D., Professor of Obstetrics in the New York Polyclinic Medical School and Hospital; Visiting Physician to the Mothers' and Babies' Hospital, New York. 8vo. 304 pages. Illustrated. Cloth, **$2.00 net.**

Consumption, Pneumonia and Allied Diseases of the Lungs, Their Etiology, Pathology and Treatment, with a Chapter on Physical Diagonsis. By THOMAS J. MAYS, A.M., M.D., Professor of Diseases of the Chest in the Philadelphia Polyclinic; Visiting Physician to Rush Hospital for Consumption. 8vo. 540 pages. Illustrated. Cloth, **$3.00 net.**

Sexual Debility in Man. By FREDERIC R. STURGIS, M.D. Formerly Clinical Professor of Venereal Diseases, Medical Department, University of the City of New York; Ex-Visiting Surgeon to the City Hospital, Blackwell's Island; one of the Authors of "A System of Legal Medicine," etc., etc. 8vo. 436 pages. Illustrated. Cloth, **$3.00 net.**

Favorite Prescriptions of Distinguished Practitioners, with Notes on Treatment. Edited by B.W. PALMER, M.D. **Seventh Edition.** 8vo. 248 pages. Cloth, **$2.00 net.**

Nervous Exhaustion, (Neurasthenia). Its Hygiene, Causes, Symptoms and Treatment. By GEORGE M. BEARD, M.D., Formerly Lecturer on Nervous Diseases in the University of the City of New York, etc. Revised by A. D. ROCKWELL, M.D, late Professor of Electro-Therapeutics in the New York Post-Graduate Medical School and Hospital, etc. **Fourth Edition.** 8vo. 274 pages. Cloth, **$2.00 net.**

The Sexual Instinct. Its Use and Dangers as Affecting Heredity and Morals. By JAMES FOSTER SCOTT, B.A. (Yale), M.D., C.M. (Edinburgh); late Obstetrician to Columbia Hospital for Women, and Lying-in Asylum, Washington, D.C. 8vo. 436 pages. Cloth, **$2.00 net.**

Treatment of Disease by Physical Methods. Massage, Electricity and Baths. By THOMAS S. DOWSE, M D. (Aberdeen), F.R.C.P. (Edinburgh). 8vo. 420 pages. Illustrated. Cloth, **$2.75.**

E. B. TREAT & CO., 241-243 West 23d Street, New York

PHYSICAL DIAGNOSIS IN OBSTETRICS

A Guide in Ante-Partum, Partum, and Post-Partum Examinations

By EDWARD A. AYERS, A.M., M.D.,

PROFESSOR OF OBSTETRICS IN THE NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL; VISITING PHYSICIAN TO THE MOTHERS' AND BABIES' HOSPITAL, NEW YORK.

The author of this work has been engaged for many years in teaching practical obstetrics to classes of both physicians and undergraduates. Class-room teachers, students and practitioners, too busy to take special instruction, will find this book the best adapted to modern obstetrical methods, both in hospital and private practice.

Beginning with the patient's previous general and obstetrical history and showing their relations to the present pregnancy, the book takes up in order:

The Ante-partum Examination, bringing out questions pertaining to **fetal position —multiple pregnancy, eclampsia,—placenta previa,—possible accidents,**—such as **fetal death in utero,—prolapsis funis,—ante-partum hemorrhages,—mal-positions of the fetus, etc.;—pelvimetry;—uterometry and abdominal palpitation; vaginal palpation; —the history of labor;—care of the breasts;—care of the child;—care of the mother through the puerperium** and the final diagnosis of maternal conditions.

8VO. 304 PAGES. ILLUSTRATED. CLOTH, Post or Express Paid, $2.00 NET.

A MANUAL OF

CHILDBED NURSING

WITH NOTES ON

Infant Feeding

By CHARLES JEWETT, A.M., M.D., Sc.D.,

Professor of Obstetrics and Diseases of Women in the Long Island College Hospital, Brooklyn, N. Y.

This volume will be found of service not only to doctors and professional nurses but to mothers and all interested in obstetrics. It is a most suggestive work, full of hints regarding the latest practice and methods. The value of the present edition is greatly enhanced by the added chapter on "Infant Feeding."

Boston Medical and Surgical Journal says: "This book is an excellent one for its size. The plan of the author in putting the text into condensed and concise paragraphs has been adopted with great success."

Medical Standard says: "This little book is a marvel of condensed information."

Yale Medical Journal says: "The book is an excellent summary of the practical points in childbed nursing and infant feeding."

Fifth Edition. 12mo. 96 pages. Cloth, post or express paid, 80c. net.

E. B. TREAT & CO., Publishers
241-243 West 23d Street NEW YORK

MEDICAL AND SURGICAL

USES OF

ELECTRICITY

INCLUDING

X-Ray and Vibratory Therapeutics, the Finsen Light and High Frequency Currents

BY

A. D. ROCKWELL, A.M., M.D.

Formerly Professor of Electro-Therapeutics in the N. Y. Post-Graduate Medical School and Hospital; Fellow of the New York Academy of Medicine; Member of the American Academy of Medicine; Member of the New York Neurological Society; Formerly Electro-Therapeutist to the Woman's Hospital in the State of New York, etc.

Electricity in its relation to medical science, as well as to commerce, has made wonderful progress in recent years. The recognized pioneer work in America was the treatise on "The Medical and Surgical Uses of Electricity," by Beard and Rockwell, of which eight successive editions were issued. In 1896 the stereotype plates were destroyed and the work rewritten by Dr. Rockwell, and issued from an entirely new set of plates. To keep abreast of the marvelous progress in this department of Medicine, a New Edition is again offered to the profession. The Roentgen X-Ray in its relation to Diagnosis and Therapeutics has been entirely rewritten. Other additions include the subject of the Actinic Rays of light (Finsen's), High Frequency Currents and Vibratory Therapeutics. In the body of the book much that has served its purpose has been discarded and new and up-to-date material substituted. It is confidently believed that in its pages will be found a comprehensive and accurate survey of this fascinating and growing field of research.

Medical Record, New York, says: "For twenty years and more the work of Beard and Rockwell has been the leading authority in this country on the subject which it treats. They were the pioneers in the field of electro-therapeutics and enunciated ideas and methods which have stood the test of time. . . . The work plainly sets forth all the fundamental principles of electricity, and in its relation to disease is clear in detail and cannot fail to greatly aid all who are interested in this department of medical science."

Medical News, Philadelphia, says: "The methods of application for therapeutic purposes are given in detail and with such clearness that the general practitioner will find the book a useful and practical guide."

Medical Journal, New York, says: "The book is much changed from the earlier editions, being in accord with the advance in our knowledge of the applications of electricity. . . . The work is valuable and will clear up many points which may be shadowy in the mind of the general practitioner."

New, Revised and Enlarged Edition.
Royal Octavo, 672 pages; Illustrated.
Cloth, $5.00, net. **Half Morocco, $6.00, net.**

E. B. TREAT & CO., Publishers
241-243 West 23d Street, New York

Sexual Debility in Man

By F. R. STURGIS, M.D., formerly Clinical Professor of Venereal Diseases in the Medical Department of the University of the City of New York; Some time Visiting Surgeon to the Venereal Division of the City (Charity) Hospital, Blackwell's Island; Member of the American Association of Genito-Urinary Surgeons, etc.

The principal reason for writing this book is to introduce to the reading medical public sundry opinions the writer holds upon sexual weaknesses in men which, although they may be at variance with ideas generally received in this country, he is convinced from experience are correct.—*From Author's Preface.*

Size 6 x 8½; about 400 pages; cloth. Price, $3.00.

Sexual Neurasthenia

Devoted to Genital Debility. Its Causes, Symptoms, and Treatment. By George M. Beard, M.D., and A. D. Rockwell, M.D., New York. Fifth edition.

The long familiar local conditions of genital debility in the male—impotence and spermatorrhœa, prostatorrhœa, irritable prostate—which have hitherto been almost universally described as diseases by themselves, are philosophically and clinically analyzed, and the most recent and successful methods of treatment—medicinal and electrical—fully considered.

The Therapeutic Gazette, Detroit, says:—"Anything and everything relating to the sexual apparatus and its diseases command attention. It is an interesting book to read and much good can be learned from it."

The St. Louis Medical and Surgical Journal says:—"This work is a thorough, complete and masterly exposé of the subject with which it deals."

Size 6 x 8½; 308 pages; cloth. Price, $2.00.

E. B. TREAT & CO., PUBLISHERS
241-243 West 23d Street, New York

DISEASES OF

METABOLISM AND NUTRITION

A Series of Monographs by

Prof. Dr. CARL von NOORDEN

Physician in Chief to the City Hospital, Frankfort-on-Main.

AUTHORIZED AMERICAN EDITION

TRANSLATED UNDER THE DIRECTION OF BOARDMAN REED, M. D., PHILADELPHIA

IT is due to the disorders of metabolism and nutrition that degenerative changes cut short the activities of so many men and women in middle life,—that, in these latter days, senility and death itself come prematurely to a very large proportion of mankind. Such disorders constitute the bane of our modern civilization. They have been in some measure also a reproach to the science and art of medicine, since until very recently they have not been studied with a thoroughness commensurate with their importance.

I. OBESITY, THE INDICATIONS FOR REDUCTION CURES.—In this volume the disease is considered in a manner which is at once scientific and practical; based upon exhaustive experiments and bedside observations carried on under the direction of the author.

Cloth, 8vo, 60 pages, 50 cents.

II. NEPHRITIS.—The author's handling of this subject is varied and original, and in various respects he has established for the treatment of the different forms of Bright's Disease, rules founded upon a critical, scientific study of numerous cases instead of the familiar directions handed down from an earlier period.

Cloth, 8vo, 112 pages, $1.00.

III. COLITIS.—The author covers the complex subject of Membranous Catarrh of the Intestines (*Colica Mucosa*), in a manner which is well-nigh exhaustive and also most convincing since he is able to report a remarkably large proportion of cures obtained by the method which he recommends.

Cloth, 8vo, 64 pages, 50 cents.

In Preparation, "Treatment of Diabetes Mellitus," "Acetonuria." Other volumes will be announced when ready.

Advance Orders taken for the Series as Issued.

E. B. TREAT & CO., *Publishers*

241-243 West 23d Street, NEW YORK

The Survival of The Fittest

To obtain immediate results in

Anaemia, Neurasthenia,

Bronchitis, Influenza, Pulmonary Tuberculosis,

and during Convalescence after exhausting diseases employ

Fellows' Syrup of Hypophosphites

Contains—Hypophosphites of Iron, Quinine, Strychnine, Lime, Manganese, Potash.

Each fluid drachm contains the equivalent of 1-64th grain of pure strychnine.

Special Note.—

Fellows' Hypophosphites *is Never Sold in Bulk.*

Medical letters may be addressed to MR. FELLOWS, 26 Christopher St., New York.

THE WHOLE OIL

There is no secret about Scott's Emulsion. Nothing is covered up by obscure references to "active principles" or "alkaloids." Neither is it an alcoholic mixture put up under some mystifying title.

Scott's Emulsion is simply an emulsion of the best Norwegian cod liver oil combined with the hypophosphites and glycerin.

We use the whole oil in Scott's Emulsion because the great reputation of cod liver oil as a food and medicine was made by using it in this way.

When cod liver oil is indicated, the whole oil must be used and it can be secured in no better way than in Scott's Emulsion.

Samples Free.

SCOTT & BOWNE, Chemists,

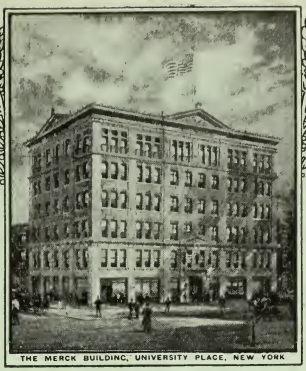
409 Pearl Street, New York.

Extract from an article entitled "The Heart in Typhoid and Malarial Fevers," by Dr. S. Aug. Freund, Berlin, Germany, in November Number, 1902, Medical Brief

Have I a case of fever? Then I do not lose sight of the enteric disorder; and yet, with my thoughts upon that, I still remember that there is a heart that is liable, at any hour, to complicate matters. That heart calls for the bromidia. It prevents the irritation, the poisoning. It cures the irritation, the poisoning. I cannot dispense with it. How did I learn this? Partly (as I have outlined) by experiment, and partly by surgical experience? What do I mean by surgical experience? This. It is after the shock, after the operation may be, after the fever invades. What is that which we say? "All will go well, unless heart failure should ensue." We all know that expression. It is heard every day. But since I began to employ bromidia for the pain, this has been eliminated. I never dread "Heart failure" when I administer bromidia in my surgical cases. This is tantamount to saying that I never dread and never fear it, as in all surgical cases, without an exception, I give bromidia. Having had such results there, there should be no need to ask where the principal lesson was learned in this matter of the fevers. I would not treat a surgical case and omit bromidia. I would not treat typhoid or typho-malarial fever, and omit bromidia.

SOME OF THE AWARDS

SOME OF THE AWARDS



THE MERCK BUILDING, UNIVERSITY PLACE, NEW YORK



1873 VIENNA: Highest Award



1880 GENOA: Gold Medal and Diploma



1862 LONDON: Medal "Honoris Causa"



1880 MELBOURNE: Gold Medal "Viam Excelere per Artes"



1879 SYDNEY: Highest Award



1867 PARIS: Gold Medal



1876 DARMSTADT: The Great Prize



1830 PARIS: Gold Medal "For the Relief of Mankind"



1853 NEW YORK: Medal and Special Approbation



1861 DARMSTADT: Gold Medal and Diploma

The Merck line of Chemicals represents faithful development of every detail; experience handed from one generation to another; and traditions preserved regarding the purity and reliability of every chemical carrying the Merck label.

Do you specify *Merck's*?

1864 STRASSBURG: Award "Beyond Competition"

1900 PARIS: Grand Prix (The Highest Award)



THE MERCK LABORATORIES AND WORKS, DARMSTADT, FOUNDED IN THE YEAR 1668

MERCK & CO.

University Place **New York**

UNIVERSITY OF ILLINOIS-URBANA
3 0112 112270738